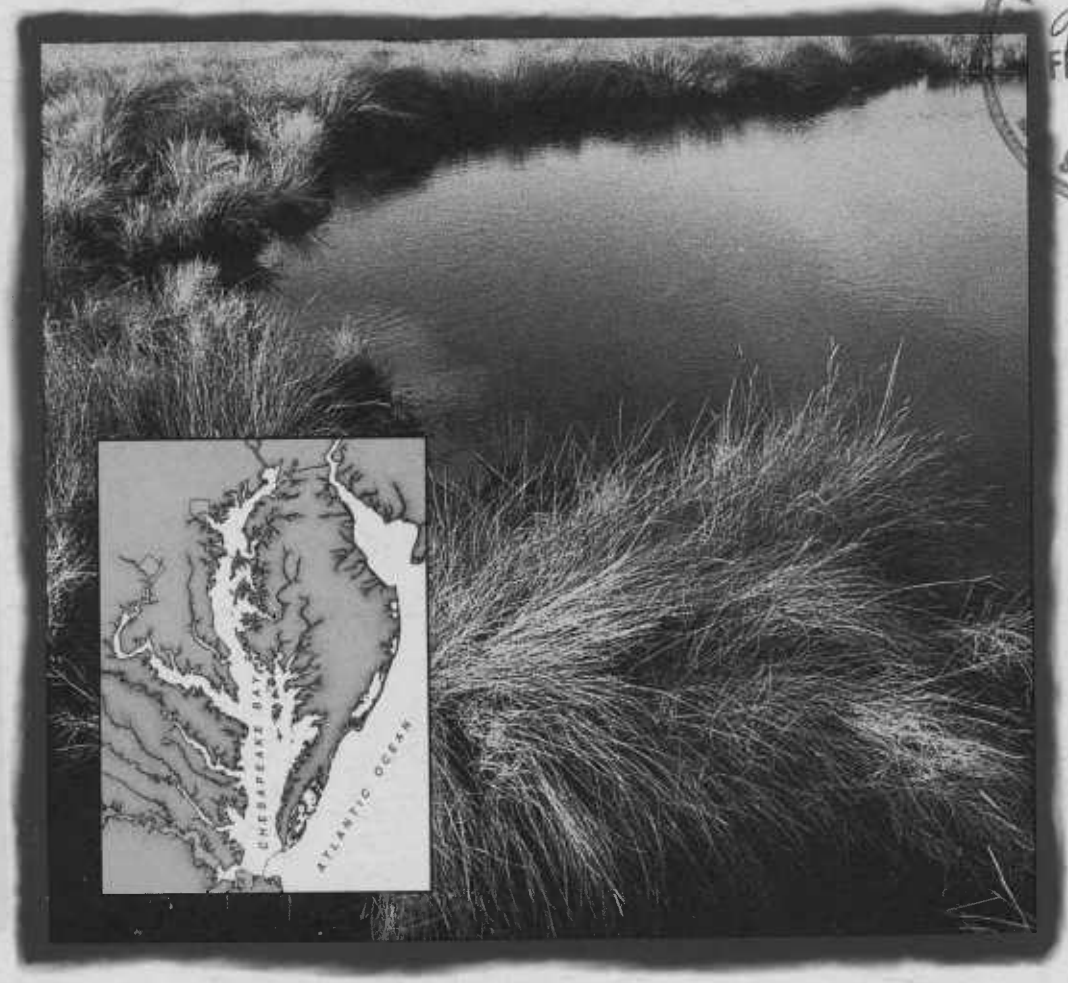
REPORT FROM THE GOVERNOR'S BLUE RIBBON PANEL

Financing Alternatives for Maryland's Tributary Strategies



Innovative Financing Ideas for Restoring the Chesapeake Bay

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Innovative Financing Ideas to Restore the Chesapeake Bay

Acknowledgements

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A special thanks is due to Eileen Rehrmann, for her leadership in chairing the Panel, and to Cecily Majerus, Office of the Governor, for her diligence in organizing and aiding the Panel's work.

And finally we would like to recognize the leadership of Governor William Donald Schaefer for establishing and endorsing this Panel and for his efforts on behalf of the Chesapeake Bay.

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Executive Summary

For years the Chesapeake Bay and its tributaries have been recognized as Maryland's most important natural resource. But this vast watershed is a resource in trouble. Pollution, in the form of excessive nutrients, is slowly killing it.

The Chesapeake's problems are not without solutions, however. In 1983, and again in 1987, Maryland, together with the Bay states and the federal government, signed formal agreements to reduce the flow of damaging nutrients to the Bay by 40% by the year 2000. Nutrients pose the greatest threat to the Bay, and their reduction is the single most important act to help protect and restore the estuary's enormous ecological, recreational and economic value.

In 1992 ambitious and far-reaching amendments to the Agreements focused restoration efforts on the Chesapeake's tributaries and extended the 40% nutrient reduction goal to these tributaries. The 1992 amendments triggered the development of Maryland's Tributary Strategies. Now, in 1995, these detailed plans, jointly written with input from the state's counties, municipalities, businesses, farmers, and citizens, lay out, tributary by tributary, what Maryland must do to reduce nutrient flows into the Bay and its rivers.

A key issue, one vital to the success of Maryland's Bay restoration effort, is how to pay for these nutrient reduction activities.

Establishment of Blue Ribbon Panel

In Maryland, about $200 million is spent each year from federal, state, local and private sources to protect and restore water quality in the Chesapeake Bay. Estimates from the Tributary Strategies effort indicate that we will need an additional $60 million, on an annualized basis, to put in place all of the nutrient reduction activities needed to meet the 40% reduction goal. How to bridge this $60 million gap equitably was the reason, in June of 1994, that Governor William Donald Schaefer appointed a *Blue Ribbon Panel on Financing Alternatives for Maryland's Tributary Strategies*. The Panel was asked to identify a menu of innovative and equitable financing ideas that would help fill the gap between current spending on Bay restoration activities and full realization of the 40% goal. Basic to the Panel's considerations was the issue of fairness and the need to assure that the burden

of costs is distributed appropriately among those who pollute as well as those who enjoy and benefit from the Bay and its tributaries.

Basic Principles

The Panel began its deliberations with the understanding that:

• Significant progress has already been made in reducing nutrient inputs to the Bay—phosphorus by 38% and nitrogen by 23%—demonstrating that the practices and technology called for in the Tributary Strategies are sound.

• The Tributary Strategies can achieve the stated objectives of a cleaner, healthier Bay.

• While the cost of implementing the Tributary Strategies seems high, the cost of not supporting the cleanup is higher. Without action, the Bay's health will decline, which will mean it will be harder and more expensive to restore in the future.

Panel Findings

After several months of discussion and review, the Panel concluded that:

• In order to reach our goal of a 40% reduction in nutrients by the year 2000, existing programs must continue to be vigorously funded.

• New and aggressive funding efforts need to be undertaken for agricultural nutrient reduction activities.

• Because everyone benefits from cleaner water, all should share in the costs of undertaking activities that bring about cleaner water.

• State and local governments may need to reconsider their capital and operating budget priorities in light of the renewed commitment to restore and protect the Chesapeake Bay.

A Menu of Ideas

The Panel's charge was to produce a menu of funding ideas for each broad category of activity under the Tributary Strategies. As well as focusing on developing new ideas to finance Tributary Strategy activities, the Panel identified changes to make better use of financing vehicles already in place. This report presents the funding menu first by nutrient source (categories of point source, developed land, agricultural land and resource protection), and then by financing type (bond, fee, loan, private initiative/incentive, public/private partnership, redirection of existing programs and surcharge). This cross-referencing allows the same ideas to be retrieved in either an issue-specific or financing-specific manner.

Among the menu of more than thirty-five funding ideas are the following highlights. In the Point Source and Developed Land categories, the report contains ideas such as the formation of stormwater utilities, the sale of municipal utility assets to private investors as tax shelters, and full-cost pricing of service fees.

In Agricultural Lands, ideas include the formation of local agricultural cooperatives to assist farmers in accessing more funding at lower costs. Another idea suggests expanding the tax deduction for certain environmental farm equipment.

For Resource Protection, the Panel listed options such as forest mitigation banking, the sale of mini-bonds to finance tree planting and stream restoration, a state-wide environmental trust fund and expanding the Bay license plate program.

One particularly noteworthy idea that makes use of existing funds is to expand the State Revolving Loan Program (SRF) to allow for loans to those in the private sector involved in Bay restoration activities.

Finally, the Panel strongly recommends that funding and implementation of nutrient reduction efforts should take place on a watershed basis through the establishment of "watershed districts." Watershed districts would formalize the relationship among local jurisdictions that reside in the same watershed, help them address common objectives of the Tributary Strategies and encourage the development of common solutions, especially financing solutions.

Conclusion

The Panel concluded that business as usual will not get us a cleaner Bay, and that contrary to past experience, in the future, financing ideas must be developed along with environmental policy.

The Panel's goal was to produce a menu of financing ideas that would be both innovative and equitable. Therefore, the financing ideas developed in this menu are meant to be used creatively, mixed and matched and applied selectively by those who benefit from their use. No one idea alone can guaranty the success of our 40% reduction goal.

The Panel urges that this report be used as the beginning of an inquiry into a range of potential funding sources to help finance the Tributary Strategies. Such discussion is essential to ensure the participation of all stakeholders in the Bay watershed and to attain the goals embraced in the Chesapeake Bay Agreements. The newly created Tributary Teams will be leaders in using and developing the ideas identified in this report. Only a partnership between all levels of government and the private sector will bring us closer to realizing a restored Chesapeake Bay.

Summary of Funding Ideas by Type

 Point Source

 Agricultural Land

 Developed Land

 Resource Protection

FUNDING IDEAS	PAGE	TYPE: BOND	FEE	LOAN	PRIVATE INCENTIVE	PUBLIC/PRIVATE PARTNERSHIP	REDIRECTION OF EXISTING PROGRAM	SURCHARGE
Pooling of communities' debt for credit enhancement/small community bond bank	27	◆						
Extension of maturity of state revenue bonds to reduce annual debt payments	28	◆						
Mini-bonds for stream restoration	52	◆						
Special Assessment District	34	◆	◆					◆
Stormwater Management Utility	32	◆	◆		◆			◆
Grant processing or handling fee	29		◆					
Annual user fee for the depletion/ degradation of aquifer	37		◆					
Full-Cost Pricing of Service Fees	37		◆					
One-time septic system installation impact fee	39		◆					
Environmental "check-off" for all agricultural products	45		◆					
Create habitat stamps patterned after duck stamp program	56		◆					
Extension of State Revolving Fund to the Private Sector	26			◆			◆	

FUNDING IDEAS	PAGE	TYPE						
		BOND	FEE	LOAN	PRIVATE INCENTIVE	PUBLIC/PRIVATE PARTNERSHIP	REDIRECTION OF EXISTING PROGRAM	SURCHARGE
Allow individual property owners to receive loans for structural shore erosion control without being required to join a designated district	54			◆			◆	
Conservation services incentive programs by major agricultural companies	47				◆			
Issue credit card benefiting private environmental organization/fund	59				◆			
Expand commemorative license plate program	55				◆			
Establish forest mitigation banking systems at state and county levels	50				◆			
Tree planting for carbon sequestration or other air quality credits	57				◆			
Restore Buffer Incentive Program to $500/acre payment to landowners	58				◆			
Create incentives for Transferable Development Rights' (TDR) receiving areas	51				◆			
Develop local agriculture cooperatives on a watershed basis to assist farmers in financing activities	42				◆			
Public-private partnership for financing wastewater treatment plant upgrades	29					◆		
Sale of municipal utility assets to private sector	28					◆		
Purchase of environmental easements by the private sector	44					◆		
Adopt-a-crab/Adopt-a-Bay creature	55					◆		
Create endowment fund for environmental protection and restoration	58					◆		

FUNDING IDEAS	PAGE	TYPE						
		BOND	FEE	LOAN	PRIVATE INCENTIVE	PUBLIC/PRIVATE PARTNERSHIP	REDIRECTION OF EXISTING PROGRAM	SURCHARGE
Apply Community Reinvestment Act requirements for local investment to environmental projects	40					◆		
Statewide Purchase/Transferable Development Right Bank (PDR/TDR)	51					◆		
Use of federal or state housing grants to finance public sewer extension to areas with failing septic systems	36						◆	
Increase cost-share cap for livestock waste storage from $35,000 to $50,000 per system	46						◆	
Expand tax deduction for conservation tillage and animal waste handling equipment to include other environmental equipment	43						◆	
Require nutrient management plans on all Maryland Agricultural Land Preservation Foundation easements	43						◆	
Tax Increment Financing (Value Capture)	35							◆
Surcharge on prepared food and beverages	45							◆
Lawn and Garden Fertilizer Surcharge	38							◆
Environmental Trust Fund	52		◆	◆	◆	◆	◆	◆

Introduction

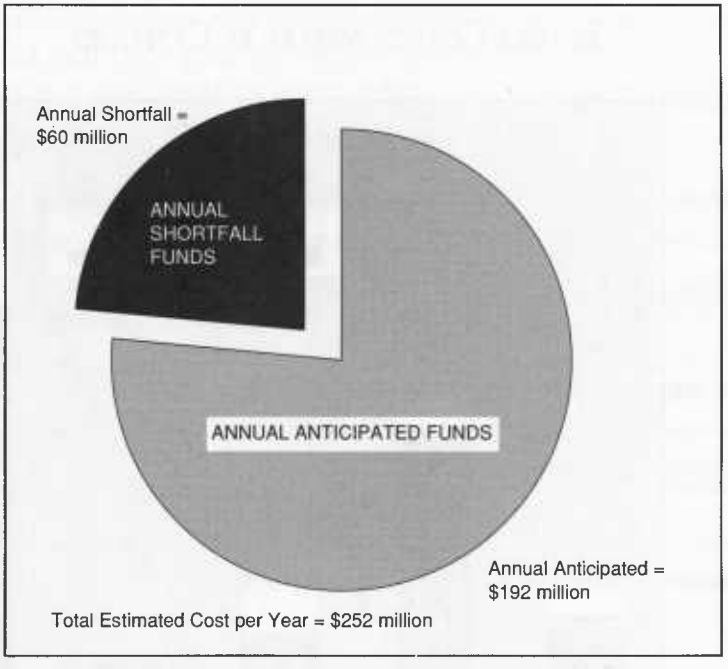
Context for the Governor's Blue Ribbon Panel

We begin with the knowledge that the citizens of Maryland care about the Chesapeake Bay and the rivers that feed it. Surveys—undertaken by the University of Maryland, the Chesapeake Bay Program and others—have shown us that people want a cleaner Chesapeake Bay, and recently many in Maryland have demonstrated their willingness to participate in the Bay cleanup effort by attending Tributary Strategy meetings held throughout the state. Further, farmers and others have demonstrated their commitment by implementing certain "best management practices" and by agreeing to reach specific nutrient-reduction targets and goals.

As was made clear at many Tributary Strategy meetings, citizens realize that reaching these goals will cost money. At those meetings and elsewhere, many people identified financing as one of the key issues in the implementation of the Bay restoration effort. Though many have ex-

The Funding Gap

Total Annual Anticipated and Shortfall of Funds



pressed a willingness to pay, they want to know where the money will come from, and how we can ensure that it is raised equitably and spent wisely.

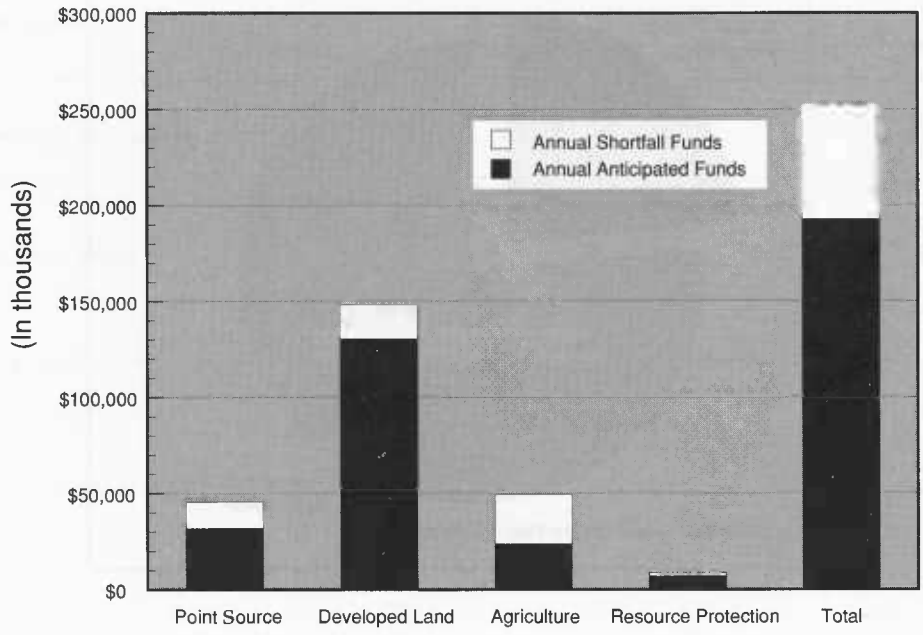
The effort to protect and restore water quality in the Chesapeake Bay currently costs approximately $200 million a year in Maryland, a sum derived from federal, state, local and private sources. The State estimates that about another $60 million a year is needed to implement the activities identified in the Tributary Strategies which will enable us to reach the 40% reduction goal necessary to restore the health of the Chesapeake Bay.

Estimates of the "funding gap" are only that—estimates—since exact methods of implementing a wide range of projects, from shoreline erosion controls to better stormwater management systems to improved agricultural practices, can vary widely. The Panel and its staff used averages and historical rates of expenditures to calculate costs. Of course costs can change over time, depending on several factors. With inflation, the price tag for most practices will likely rise in the future. Moreover, putting off implementation of the practices needed to protect and restore water quality in the Bay and its rivers will result in further deterioration and higher costs when those problems are finally confronted.

The Charge to the Blue Ribbon Panel

To address the issue of funding the cleanup of the Chesapeake Bay, Governor William Donald Schaefer appointed, in June, 1994, the *Blue Ribbon Panel on Financing Alternatives for Maryland's Tributary Strategies.* The appointment of this Panel represents an important step in the continuing

Future Cost Summary by Category



commitment on behalf of Maryland and its sister states in the watershed to restore what has historically been perhaps the most productive estuary in the world.

The Panel, chaired by Eileen Rehrmann, County Executive of Harford County, is comprised of 22 representatives from the agricultural, banking, business, environmental and finance communities, and state and local governments. This group debated a range of new and alternative methods for financing nutrient reduction activities and developed a menu of recommended options. The four major categories of the Tributary Strategies for which funding options were developed are:

- Point Source (biological and chemical nutrient removal)
- Developed Land (e.g., stormwater management; erosion and sediment control; septic systems management)
- Agricultural Lands (e.g., soil conservation and water quality planning; fertilizer, organic waste and animal waste management; conservation tillage)
- Resource Protection (e.g., forest conservation and tree planting; buffers; shore erosion controls; marine pumpouts; education)

Currently, Tributary Strategy practices in these areas are financed through a variety of federal and state programs, local cost-share contributions, and costs born directly by the private sector. But these funding sources, as they exist, can only cover a "business as usual" level of effort inadequate to the challenge of significantly improving the health of the Chesapeake Bay. As recognized by the Tributary Strategies, current nutrient reduction practices will have to expand if Maryland is to meet its 40% nutrient reduction goal and restore the Bay's vitality.

Identifying new funds (or existing funds which could be used in new ways) to cover this shortfall was the main focus of the Panel.

The 1983 & 1987 Chesapeake Bay Agreements

To understand the current approach to restoring the Bay and its tributaries—and the development of strategies for funding that restoration—one must understand the background for the current Tributary Strategies.

The current effort to restore the Chesapeake began in 1983, when the governors of Maryland, Virginia and Pennsylvania, the Mayor of the District of Columbia, the Chair of the Chesapeake Bay Commission and the U.S. Environmental Protection Agency signed the historic Chesapeake Bay Agreement, a broad but firm commitment to restore the Chesapeake to its former health and productivity.

In December of 1987, the signatories of the original Bay Agreement expanded the scope of their agenda with the addition of 29 commitments to action, outlined under the following six areas:

- living resources
- water quality
- population growth and development
- public information, education and participation
- public access
- governance

In addition, the 1987 Bay Agreement called for a 40% reduction in the amount of nitrogen and phosphorus flowing into the Bay by the year 2000.

The 40% nutrient reduction goal, measured against 1985 base level nutrient flows, became a key element—and is often highlighted—because reducing nitrogen and phosphorus remains central to the larger goal of the 1987 Agreement: to restore the abundance, variety, and productivity of plants and animals known as the Bay's "living resources." As is now widely understood, excessive nutrients in the Bay cause algae blooms, which block sunlight and lead to the loss of underwater grasses, which provide important habitat for crabs and a wide variety of fish. In addition, as algae fall to the Bay floor and decompose, they rob the water of oxygen, making it even more difficult for fish and other species to survive.

The improvement and maintenance of water quality are the single most critical elements in the overall restoration and protection of the Chesapeake Bay. Water is the medium in which all living resources of the Bay live, and their ability to survive and flourish is directly dependent on it.

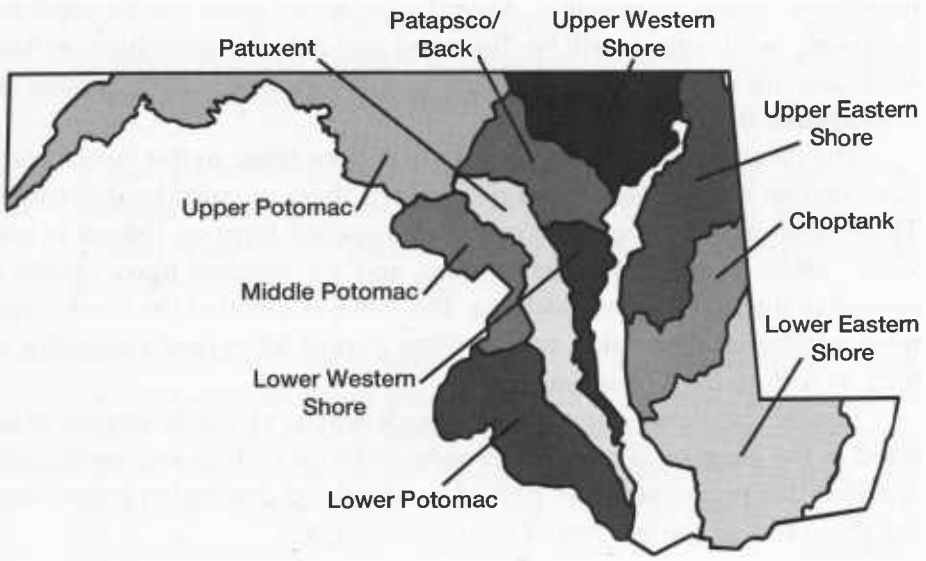
—1987 Chesapeake Bay Agreement

"The Tributary Strategies"

The 1992 Bay Agreement Amendments turned attention to the rivers, focusing on pollution control in the Bay's tributaries as a way of improving water quality in the Chesapeake mainstem. Under the Tributary Strategies, Maryland's portion of the Bay watershed is divided into ten sub-basins, each of which has been assigned a 40% nutrient reduction goal. For each of the ten sub-basins, a draft plan has been developed to reduce nitrogen and phosphorus to 40% below the 1985 levels by the year 2000. Future efforts, beyond the scope of the existing draft strategies, will be necessary to maintain this level of reduction thereafter, in light of continued population growth (estimated at 18% by 2020 statewide).

In each of Maryland's ten tributary watersheds, partnerships have been established among state and local government officials, citizens, and members of the agricultural, business, and environmental communities to work on nutrient reduction plans. Draft Tributary Strategies were reviewed and discussed at public hearings across the state in the spring of 1993 and 1994. These plans will be the framework for implementation of activities conducted by the public and private sector, with the help of "Tributary Teams" representing the stakeholders in each tributary.

Maryland's Ten Tributaries



The 1992 Amendments to the Chesapeake Bay Agreements

FINDINGS

OVERVIEW

From the outset, the Panel focused on creative thinking, identifying options in all areas of finance, including public-private partnerships, unconventional loans, user fees, appropriate surcharges, securitization and other mechanisms not always considered for funding environmental projects. The Panel spent about equal time discussing specific funding tools on the one hand, and policy approaches that would affect the way we finance projects on the other. Some of these policy changes may, of course, require legislative action.

Because of the urgency of the issue, the Panel worked quickly. This means that rather than explore all steps necessary for implementation, the Panel identified a variety of options, listing basic information about each mechanism so that interested parties—especially local governments—will be able to consider and fully develop the tools that best suit their local needs.

The ideas considered by the Panel vary widely. Many can be implemented without much difficulty. Others will require new legislation or regulation, policy changes or considerable political support before implementation would be possible. Accordingly, some ideas can be used immediately, while others will be discussed and debated, over time, as tools for financing the true cost of restoring streams, rivers and, finally, the Chesapeake Bay.

The Panel is aware that a number of actions listed in this report could have certain repercussions and deliberated these at considerable length. Those deliberations appear in much abbreviated form as "issues to consider" listed under each funding idea, and are touched upon briefly in several of the introductory sections. The Panel hopes that the ideas which need additional discussion will become part of Maryland's ongoing efforts to restore the Chesapeake Bay.

Finally, the Panel hopes that its work will be of use to anyone interested in the issue of financing environmental protection and restoration, and that this report becomes part of a continuing discussion about funding programs in the interest of the common good.

General Findings

The financing mechanisms listed in the following pages provide a "menu" of options which federal, state, and local partners in the Bay restoration effort will want to consider as they begin to implement the Tributary Strategies. In addition to this menu of funding ideas, the Panel finds:

- Implementing the Tributary Strategies represents keeping a long-term commitment made in 1987 and does not represent a new mandate.

- The Tributary Strategies that will get us to our year 2000 goal are based on proven management practices that get results. Significant progress towards achieving the 40% nitrogen and phosphorus reductions has been made with a 38% reduction of phosphorus and a 23% reduction of nitrogen loadings.

- The success of achieving the nutrient reduction goal of the Chesapeake Bay Agreement by the year 2000 rests upon rapidly implementing aggressive funding strategies.

- New and amended Federal, State and local legislation may be required in order to implement the funding options recommended by the Blue Ribbon Panel.

- The wide range of activities identified in the Tributary Strategies clearly shows that meeting the nutrient reduction goal will require everyone in Maryland to share in the costs.

- If funding efforts fall short and Maryland fails to implement the Tributary Strategies, we will face larger costs in the form of degraded resources, decreased commercial fishing, declining tourism, and more costly clean-up efforts.

- Many of the Tributary Strategy activities address technical issues, such as nonpoint runoff from farms and developed lands, not commonly recognized as problems by most people. It is therefore natural that these same people do not fully appreciate the true costs associated with the restoration effort. The key to achieving adequate funding depends on gaining public support, by communicating a clear understanding of both problems and solutions.

- The Panel believes that people are more willing to provide financial support to worthwhile goals if they know where their money is going and that everyone is paying their fair share. Given this

basis for gaining public support, the Panel has sought to identify funding mechanisms that provide incentives and distribute costs among both beneficiaries of programs and sources of problems. Such mechanisms typically dedicate the funds to specific limited activities, providing additional accountability to the public.

- Agriculture represents one of the most challenging areas for creative funding approaches. Agricultural nonpoint source controls are vital to the success of the Tributary Strategies and in many cases are the most cost-effective control measures available. Development and implementation of creative financing mechanisms for these controls should receive high priority.

- Point-source nutrient reduction at wastewater treatment plants will continue to play a major role in meeting the goal of the Bay Agreement. Since federal grants for this segment are no longer available, the investigations begun by the Panel into unconventional funding mechanisms should be taken up by decisionmakers at all levels of government.

- Many of the Tributary Strategy activities have additional benefits that are inseparable from the nutrient reduction benefits. These include the correction of health hazards associated with failing septic systems, the control of toxic compounds—in urban runoff, for example—the protection of wildlife habitat, and the cultural and economic values associated with maintaining viable agriculture. These other benefits should be considered when setting funding priorities, or considering the impact of new incentives, fees, taxes or other funding mechanisms.

- Finally, and most importantly, the Panel feels strongly that funding and implementation of nutrient-reduction programs should take place on a watershed basis. The Panel therefore recommends that action be taken by the Governor's Office to develop a plan for creating watershed districts to expedite the funding of nutrient-reduction activities throughout the state's watersheds.

CATEGORICAL CHANGES: A WATERSHED APPROACH

The Panel discussed both specific funding tools—presented in the "menu" section of this report—and categorical changes that would affect the way we fund environmental projects. The primary "categorical" change recommended is the shift to a greater focus on funding and implementing programs on a watershed basis.

The Panel felt strongly that mechanisms for funding the Tributary Strategies would be aided by watershed districts of some kind. Varying types of watershed districts could be envisioned, depending on the nature of their fiscal authority and the types of activities that would fall under their jurisdiction. A watershed district could, at a basic level, make recommendations only (having no fiscal authority); or it could, beyond this, have authority over a budget which is controlled by member counties and municipalities; or, finally, it could have authority to issue bonds and collect revenues.

Similarly, the range of activities that could fall under the jurisdiction of a watershed district might include any combination of nutrient removal activities addressed by the Panel, such as: wastewater treatment, stormwater management, agricultural practices, resource protection activities with nutrient reduction benefits, and septic system connections to sewers. Clearly, many combinations of fiscal authority across jurisdictions are conceivable.

For example, suppose that a given tributary had the potential for garnering funds—through the State Revolving Fund, for instance—to improve a small town sewage treatment plant, allowing the removal of additional nitrogen. But suppose further that studies have shown repeatedly that the largest input of nitrogen to this particular tributary derives from agricultural practices, including inadequate storage facilities for animal waste. A watershed district could, if properly structured, use the sewage treatment funds to deal with the animal waste problem, thereby having a greater impact on nutrient reduction.

In short, watershed districts can offer greater flexibility for the funding of environmental programs specific to each watershed, and help to increase efficiency through economies of scale. Perhaps in the future individual watershed districts could even combine or cooperate, creating larger authorities and commanding better rates and more attractive financial instruments.

In conclusion, the Panel endorses moving in the direction of "watershed districts" and recommends that those involved in implementing the Tributary Strategies investigate workable institutional structures over the next year. Specifically, the Panel recommends that the Governor's Office establish a commission to investigate the practical implementation of watershed districts in Maryland.

WHY EXPLORE FINANCING ALTERNATIVES?

Traditionally, federal, state and local governments have used taxes to fund projects which benefit large numbers of citizens. From highways, to bridges, to sewage treatment plants, tax-supported programs have made a high standard of living possible in this country. Certainly the Chesapeake Bay Program, with its federal and multi-state partnership, would not be possible without taxes. Nevertheless, it has become clear that conventional taxes simply cannot support every project we need to undertake to protect the environment and to ensure a continued high quality of life as we enter the next century.

The question debated by the Panel, then, was not so much "taxes or no taxes," but rather, "How can we pay for what we need to do?" Taxes have been and will continue to be a part of funding the Tributary Strategies, but the Panel examined other options as well, which we could divide into three areas: savings and transfers, loans, and revenues.

Savings and Transfers

The more one looks into the financing of environmental projects, the more one realizes the truth that what we save we earn. Often when considering how to raise funds necessary to pay for expensive clean-up projects, one realizes that with some change in behavior, the expense could be much less.

For example, the laying of expensive sewer pipe would cost less if we planned and clustered development more carefully. If septic tanks were well maintained, we would not be facing such an expensive cleanup of nutrients in many parts of the watershed. If farmers, homeowners and businesses can be more efficient with their use of fertilizer, they would save themselves money and reduce the potential for nutrients reaching the tributaries. Specifically, there are potential savings in fertilizer costs for farmers, especially for those using animal waste as a source of crop nutrients.

Clearly, if we used less electricity and drove our cars less, we would put less nitrogen in the air from electric power plants and car exhausts.

Such changes in behavior — whether new development patterns, more careful farm practices, or a more frugal use of fossil fuels — generally won't cost the taxpayer money.

In addition to savings, the Panel also discussed transfers — shifting funds from one program or area to another, without necessarily creating a net increase. Funds could be, for example, shifted from an area needing less emphasis to a program which would more directly result in decreased nutrient loadings into the Bay.

Loans

While everyone realizes the importance, both to the environment and to human health, of careful waste treatment practices, modern treatment

facilities are expensive to build and maintain. The federal government has made a substantial commitment over the years to aiding states with the construction of waste treatment plants, but with the increase in the federal deficit, continued subsidies became difficult. One solution to this dilemma has been the State Revolving Loan Fund (SRF). This fund represents a constructive compromise. Instead of withdrawing federal support altogether, the SRF provides states with funds to loan to municipalities for the construction of waste treatment plants. The loans carry very low interest rates, and therefore help the municipalities in their attempts to finance these facilities, which serve the public interest. Once the loans are repaid, the funds again become available to assist other communities.

The lesson here is that loans can provide a middle ground between total subsidy on the one hand and complete lack of support on the other. The Blue Ribbon Panel discussed ways in which the SRF might be employed to good use in additional areas as well, such as in controlling nonpoint sources of nutrients.

The Blue Ribbon Panel also discussed ways in which the SRF might be employed to provide loans not only to public but to private entities for controlling nonpoint sources of nutrients. Currently such loans are allowed by the U.S. Environmental Protection Agency (EPA) but barred by State law. Many options are available for originating and securing private loans and the combination of these options could be implemented through banks and other financial institutions to support the Tributary Strategies, State and Federal laws permitting.

In addition to the SRF, there may be other creative ways of using loans to help either individuals (such as farmers) or communities (such as small towns or unincorporated areas) bridge the funding gap. This could become more feasible if these groups joined together in cooperatives or in new associations, such as "watershed districts."

Revenues

As some of the finance experts on the Blue Ribbon Panel pointed out, we do not always remember that state and local communities have considerable assets. For example, consider how much underground pipe exists in Maryland. In one sense, that pipe is an asset. Could it be sold to a private concern, who could then claim a substantial depreciation for that pipe on their taxes? Are there other assets owned by state and local communities which could be privatized or used to generate income?

The Blue Ribbon Panel investigated a number of case studies, including the recent purchase in Ohio of a waste treatment plant by a private company. Such a purchase was made possible by a federal executive order which allows the sale of facilities built with public money to private concerns. There are still legal and other questions about such sales, but

privatization remains an area which will continue to deserve scrutiny as we enter the next century, and the Panel recommends continued investigation into this area.

The state has many other assets which are of great value, not the least of which is the Chesapeake Bay. Undoubtedly the Bay generates considerable revenue for the state, as fishermen, sailors, tourists, business owners and others flock to the area to enjoy the nation's largest estuary. Are there new ways of capturing a small part of that revenue for the restoration of the Bay itself? The Bay license plate has been very successful in Maryland. Could there also be a Bay stamp or other items the State could sell?

The Blue Ribbon Panel began an exploration into this area which should be continued well into the future by other citizens and entrepreneurs.

Finally, great sums of money could potentially be either saved or raised through the formation of cooperatives or other joint ventures. One panelist, for example, has been exploring ways of joining small companies together to allow them to improve their debt capacity. The panelist estimates that by joining small water companies and creating a "common bond," the debt service on their current finances could be immediately reduced by 25%. Again, such innovations would cost the taxpayer nothing.

Other cooperatives—comprised of farmers, for example—could also benefit from improved financing. Farmers and other citizens in a given tributary or region could join together to finance the building of expensive structures, such as animal waste containment systems.

Such ideas may seem "experimental," but then mortgaged-backed securities were rare a decade or so ago; now they account for literally billions of dollars of investment funds.

In short, the Panel urges the continued exploration into all these areas as possible means to augment funds available for nutrient-reduction programs, while realizing that the state's responsibility, supported primarily through taxes and fees, will remain crucial.

Funding Mechanisms By Category

Introduction

The purpose of the following list is to provide a "menu" of funding options for local governments and other users. The Panel has considered a full range of options, from special fees to the formation of cooperatives. A number of areas—such as securitization—offer further potential for creative funding schemes and deserve continued investigation.

The Panel feels that a mix of various funding mechanisms will ultimately be required to make up the current shortfall in the Tributary Strategies effort. Continued creativity will be essential, and the Panel recommends, first, that planners and decisionmakers at all levels of government and in the private sector strongly consider how to make use of the different funding mechanisms listed here, and second, that they continue their own investigations into new ways of funding important environmental projects.

Four Categories

This compilation of funding ideas is arranged according to the four major areas of the Tributary Strategies: Point Source, Developed Land, Agricultural Lands and Resource Protection.

In terms of nutrient reduction "Point Source" essentially refers to biological nutrient reduction (BNR) at waste treatment plants with flows of at least 500,000 gallons per day.

The primary "nonpoint source" focus falls on Agricultural Lands, with an emphasis on conservation and nutrient management plans and improved means for containing animal waste and other sources of nitro-

gen and phosphorus. Developed Land programs primarily address runoff from streets, parking lots and other developed areas, and focus on stormwater management efforts, such as retention ponds. Resource Protection includes a range of practices designed to protect natural areas such as forests and wetlands.

Of the four areas addressed here, projects on developed land, such as the "retrofitting" of outdated stormwater systems, are generally the most expensive. Generally, point source projects have had the benefit of specific construction grants and other sources of funds and have been proven to be quite cost effective. The largest shortfall in funding, however, is in the area of agricultural programs. Agricultural programs, such as cost-share programs, are generally voluntary, and many efforts, such as developing conservation plans, may lack adequate technical assistance or incentives. Resource protection programs, while a small portion of the total shortfall, have the potential to contribute significant habitat benefits in addition to their nutrient reduction function.

Each of the four sections begins with a brief introduction and overview of issues in that area. Ideas with a broader impact generally appear first, followed by mechanisms which raise new funds and finally by ideas for reallocating existing funds. Some issues cut across areas, of course, as do some funding mechanisms. Icons are used to identify categories and to signal which funding mechanisms are likely to be useful in more than one area.

Point Source

Point source pollution of the Chesapeake Bay is the easiest type of pollution to identify, and its control may be the most cost-effective type to implement.

The point sources of nitrogen and phosphorus pollution targeted for reduction by the Tributary Strategies are primarily the wastewater treatment plants (WWTP) that discharge into the Chesapeake Bay, its rivers and streams.

Maryland's Tributary Strategies concentrate on biological processes (most cost effective across the widest spectrum of treatment plants) to reduce nutrients from wastewater treatment plant discharges. The Strategies target those plants with current flows over one half million gallons per day (0.5 mgd). In addition, if smaller treatment plants (under 0.5 mgd) expand to over one half million gallons per day capacity, the expectation is that Biological Nutrient Removal (BNR) for nitrogen and chemical phosphorus removal (CPR) will be implemented at the time of expansion.

Currently, the state's Biological Nutrient Removal Program, initiated by the Maryland General Assembly and Maryland Department of the Environment (MDE), uses the proceeds from state general obligation bonds to help fund the upgrade of wastewater treatment plants. Under this program, state funding covers 50% of the cost for equipping existing facilities with BNR, including feasibility studies, design and construction. Facility owners, on the other hand, provide the other 50% of the funding, as well as costs associated with any facility expansion to accommodate future growth. In terms of sources of revenue, funding from local governments can come from loans, local bond proceeds or pay-go sources.

To date, the state has authorized $66.2 million for this program. However, at least $6.0 million per year, in addition to funds already being spent, will be needed by the state to fully implement the point source Tributary Strategy Option by the year 2000.

The Panel assumes, as is commonly the case, that funding for local government's share of the program will be paid by ratepayers, and those funds will be available as needed. However, it is clear to the Panel that additional sources of funding are needed in order to achieve the objectives of the Tributary Strategies. A range of options were developed, which include:

- Extending the State Revolving Loan Fund to facilitate private investment in wastewater treatment plant upgrades.
- Tax-exempt lease arrangement by a public/private partnership for wastewater treatment plant upgrades.
- Private-sector purchase of municipal utility assets to raise funds for capital improvement projects.
- Pooling of communities' debt for credit enhancement and bond banks.
- Extension of the maturity of state revenue bonds to coincide with

the service life of financed facilities to reduce annual debt service payments.

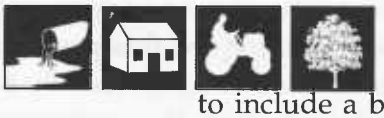
Additional Considerations

In addition, the Blue Ribbon Panel raised several other issues that went beyond the implementation of the BNR Program and addressed possible enhancements to the existing program:

- additional funding for BNR beyond the current treatment capacity projected for planned growth,
- additional funding for phosphorus removal at WWTP's as part of the Tributary Strategies,
- the value of expanding the current program to include BNR at wastewater treatment plants below 0.5 mgd, and
- allowing funding for alternative nutrient removal options such as land application.

The Panel realizes that the additional capital costs associated with implementing any of the above mentioned enhancements to the current program would increase the current $36 million, six-year shortfall. To maintain the state's debt affordability ceiling, there is need for other sources of capital funds.

POINT SOURCE: LIST OF FUNDING MECHANISMS



IDEA: Extend State Revolving Fund (SRF) to include a broader borrowing base (the private sector) and wider application to nonpoint source pollution controls

Revenue Generated/Redirected: Total federal allocation to Maryland is $218 million. Through a 20% state match and the use of tax-exempt revenue bonds, the SRF has the potential to make up to $600 million in loans to local governments, of which $400 million has been dedicated. The unallocated leverage capacity of $200 million (federal funds-$69 million; state-$13.8 million; tax-exempt revenue bonds-$117 million) remains available.

Description: The SRF was established through the Water Quality Act of 1987 to replace the U.S. EPA Construction Grants Program for wastewater treatment facilities. The objective of the program is to improve water quality. Grant funds are appropriated by Congress to states, who then make loans to communities. Maryland leverages its federal grant and its state match funds to increase the amount of money available for loans through the sale of tax-exempt revenue bonds. Loans to communities are

made at or below market interest rates for up to 20 years. Repaid principal and interest are then used for new loans.

The idea is to extend the SRF program to the private sector so that private and public/private partnerships can use and leverage the federal and state funds to engage in such activities as the upgrade of wastewater treatment facilities, repair/connection of failing septic systems, stormwater management, agricultural best management practices and stream restoration (see page 34 for Developed Land ideas, page 42 for Agricultural Lands ideas, and page 54 for Resource Protection ideas).

Suggested methods for making the SRF available to a broader audience include placing deposits in financial institutions to provide loan subsidies. The financial institutions could then leverage the funds, perhaps increasing the pool by two or three times its current size. The financial institutions could also administer the loans, which is an efficient use of their resources since they are in the business of credit evaluation and loan administration. Using financial institutions could also minimize the state's costs and exposure to loan losses.

Mechanism: Loan and Redirection of Existing Program.

Action Needed: Amend the Maryland Water Quality Financing Administration Act to permit loans to the private sector. In addition, changes must be made in the federal Clean Water Act to allow for private loans for point source projects.

Issues to Consider: Funds would be available at below market interest rates to private parties. Loans bear only interest on funds drawn during the construction period.

Repayment period is shorter than many local governments or private investors would like. Projects must meet all the Federal requirements to qualify for the loans. Vouchers and support documentation must be submitted to support payment request. Loans to private parties may create competition for funds with public government.

Case Example: pages 92, 93

IDEA: Pooling of communities' debt for credit enhancement/ small community bond bank

Revenue Generated/Redirected: Estimate Not Known.

Description: A bond bank is an institution that pools together offerings of individual bonds. To assist smaller communities and communities without a credit rating, bond banks would be formed to pool bond offerings into a single bond issue that can then be issued at a lower interest rate than any single community's issue could command.

Mechanism: Bond.

Action Needed: Would require change in state law. May require a lim-

ited state guaranty to provide credit backing. May require state authority to manage the bond bank.

Issues to Consider: Provides small communities with access to national bond markets, and with credit enhancement from either insurance or a guaranty from the state, may allow for lower interest rates. Pooled offerings reduce issuance costs for each participant.

Not as useful to larger communities and small communities with good ratings, who can usually command lower interest rates on their own. If the state's credit rating is used in the form of a state guaranty, part of the state's credit capacity must be used for these projects—capacity to finance other state projects may be impaired.

IDEA: Extension of maturity of state revenue bonds to coincide with the service life of financed facilities to reduce annual debt service payments

Revenue Generated/Redirected: $5.0 million.

Description: The term of state revenue bonds sold for the Biological Nutrient Removal (BNR) program would be extended from 20 to 30 years for the years 1996-2000, thereby raising the debt affordability ceiling and allowing the state to fund the additional costs of this Tributary Strategy option.

Mechanism: Bond.

Action Needed: Legislative approval.

IDEA: Sale of Municipal Utility Assets to Private Sector.

Revenue Generated/Redirected: Estimate not known.

Description: Local governments could tap an additional source of capital if they sold such municipal utility assets as water mains and pumping stations to private investors interested in reducing their tax obligations. Private companies like AT&T and BGE depreciate their assets, such as telephone and electric power lines, over the period of the assets' useful life (30 years or more). If municipal utility assets were purchased by the private sector (profitable corporations, businesses or wealthy individuals), investors could take advantage of this depreciation schedule and enjoy several years of reduced tax obligations. The maintenance of the asset would remain with the municipality and ownership of the utility asset would revert to the municipality at the end of the depreciation schedule.

Mechanism: Public/Private Partnership.

Action Needed: Enabling legislation; marketing of concept.
Issues to Consider: New source of capital not previously tapped—does not affect state's debt capacity.

IDEA: Public-private partnership for financing wastewater treament plant upgrades

Revenue Generated/Redirected: Estimate not known.
Description: Under a tax-exempt lease arrangement, a public partner finances capital assets or facilities by borrowing funds from an investor or financial institution. The private partner generally acquires title to the asset, but transfers it to the public partner either at the end or at the beginning of the lease term. The portion of the lease payment that is used to pay interest on the capital investment is tax-exempt under state and federal laws. Tax-exempt leases are a method of capital financing that could be applied to any environmental facility. Since the lease arrangements do not count against local debt limits, they may be a particularly useful tool for communities whose debt capacity is nearly exhausted.
Mechanism: Public/Private Partnership.
Action Needed: Local law changes are needed to allow a municipality or public partner to enter into a tax-exempt lease agreement with private parties.
Issues to Consider: A primary advantage of a tax-exempt lease is that the public partner can acquire capital from the private sector without issuing a bond. The public partner can use a tax-exempt lease to acquire private capital at discounted rates. The private partner gains the benefit of tax-exempt income from the interest portion of the lease payments.

Since some lease arrangements are long-term, the public partner will need to have the power to enter into long-term contracts.
Case Example: pages 94, 95, 96

IDEA: Grant Processing or Handling Fee

Revenue Generated/Redirected: $100,000 (1% of a $10 million allocation).
Description: To allow state programs that provide grants to local entities the authority to charge fees for processing and administering the grant. These fees would be limited to the state's cost to administer the grant and could be capped at 2.5% of the allocation. The cost of administering state grant programs is not provided for in the enabling legislation, thus administrative and personnel costs must come out of existing

state operating budgets. The operating budgets of agencies have continued to shrink while new mandates have been imposed on the agencies. The imposition of a processing fee on a grantee is insignificant in relation to the overall project cost and would be similar to the permit fees they already pay.

Mechanism: Fee.

Action Needed: Legislative approval.

Issues to Consider: The imposition of another fee for doing business with the State. This fee would be independent of the normal funding formula for determining eligibility for State funding and could not be partially funded through the State's share.

DEVELOPED LAND

Nutrient controls for developed land will play a major part in meeting the goals of Maryland's Tributary Strategies. These controls include continuation and enhancement of existing programs for stormwater management and erosion and sediment control, retrofiting on land that was developed prior to the 1984 requirement for stormwater management, provision of public sewer to failing septic areas, and enhancement of education efforts to increase regular maintenance of septic systems. The Blue Ribbon Panel has focused on only those control measures that have significant funding shortfalls. These measures and others, that did not warrant attention by the Blue Ribbon Panel, are described in appendices to the draft Tributary Strategies.

The Blue Ribbon Panel discussed funding the stormwater management, retrofit and erosion and sediment control practices which help reduce nutrient loads. Maryland is generally recognized as being a leader in these areas; however, there is room for improvement in design and implementation. This can be accomplished by strengthening local and state involvement in the implementation process. However, local and state resources are currently drawn away from this task by competing needs. The Panel's recommendations build on this insight and suggest funding mechanisms that are dedicated exclusively to stormwater management, retrofit and erosion and sediment control practices, and promote fiscal self-sufficiency.

The Maryland Department of Environment and local governments currently make efforts to extend public sewer to failing septic areas, primarily for the purpose of eliminating the risks to public health. Because septic connections have the additional benefit of reducing nutrient discharges, the Tributary Strategies call for acceleration of these activities. However, the traditional source of funding for this option, the Federal Construction Grants Program, has been phased out and replaced by the State Revolving Fund (SRF). Even though this program offers below market rates and has adequate loan capacity, many local governments are not willing or able to take on the additional costs of a loan. Under existing laws, SRF is not available to finance private sector capital projects.

The Panel discussions centered on four general concepts. First, the panel members worked under the assumption that new funding mechanisms should be fair and place the cost of pollution controls on the source of the problem and the beneficiaries. These ideas, which include annual fees for the depletion/degradation of the aquifer, establishment of special assessment districts, creation of stormwater utilities, full cost pricing of service fees, tax increment financing, etc., have the potential of accomplishing this task.

The second concept included the idea of creating watershed authorities or districts and a new "Environmental Fund" which would, on a broader watershed level, more efficiently manage programs and funds

which are necessary to implement the Tributary Strategies.

The third concept considered broader use of exiting sources of funding such as SRF and the Community Development Block Grant (CDBG) program. These ideas include the use of the SRF to finance private sector capital projects, and expansion of the SRF scope to finance stormwater management, retrofit/conversions and public sewer connections to failing septic areas.

Finally, the panel considered innovative ideas such as private sector purchase of municipal utility assets which would help to raise funds to finance essential capital improvement projects; and the use of banks and other private financial institutions to minimize the state's cost and exposure to losses.

Additional Considerations

Within the context of proposing funding alternatives, described later in this section, the Panel considered the following alternatives that do not specifically raise funds, yet help achieve the Tributary Strategy goal.

- The Panel strongly encourages local governments to take ownership of stormwater management structures traditionally turned over to homeowner associations. If homeowner associations are to continue ownership, the Panel encourages that 1) full disclosure of financial liability be made to individual homeowners at the time of purchase, and 2) an escrow account be maintained to pay for routine and major maintenance.

- The Panel endorses an incentive system (tax credits or utility fee credits) to encourage businesses and individuals to install landscaping designed to reduce stormwater runoff and curtail fertilizer use. The Panel endorses as one option the use of a lawn and garden fertilizer surcharge to offset the cost of this incentive system.

DEVELOPED LAND: LIST OF FUNDING MECHANISMS

IDEA: Stormwater Management Utility

Revenue Generated/Redirected: $500,000 to $10 million per year per county. $70 million statewide per year. Assumes $20 per year per residential unit, and no charges for undeveloped, tax exempt, and agricultural lands.

Description: A utility is an enterprise that performs a service and has the

authority to charge fees for that service. For stormwater management, landowners are assessed a fee that is based on their parcel size and degree to which their land is developed. Typically, residential parcels are grouped into size classes with a common fee within each class. Commercial parcels are assessed individually and charged a site-specific fee. Fees are most commonly collected via existing water bill systems or as a line item on property tax statements. The revenues are usually held in a separate fund dedicated to stormwater management activities. The utility could address stormwater retrofit costs and a portion of erosion and sediment control program costs. These utilities could be established within a municipality, a county, or encompass a whole watershed.

Mechanism: Bond, Fee, Private Initiative/Incentive, Surcharge.

Action Needed: Local ordinances, state legislation (if watershed-based), ratepayer databases and billing systems, public education.

Issues to Consider: The Blue Ribbon Panel recommends creating utilities delineated by watershed boundaries. Tributary Strategy goals within each watershed would guide rate structures and the allocation of funds. Fees could be collected by a single watershed authority or by each county and municipality. The former has the advantage of reducing duplication of effort, whereas, the latter may be able to take advantage of existing billing systems. Each jurisdiction would provide the stormwater services within their portion of the watershed.

Utilities can generate substantial revenues and represent a new source of funds. Utility revenues would exceed the statewide shortfall for stormwater management, allowing general funds to be released for other uses. Utility's dedicated funds are viewed as being more accountable by the general public. The rate system is more equitable since it is based on pollution contribution rather than property value (a tax). Utilities can generate capital funds (revenue bonds) secured by the utility's revenue stream. Implementing stormwater utilities on a watershed basis would help ensure secure statewide funding.

One detraction of the utility concept is that the administrative overhead tends to be greater than simply creating a dedicated property tax system for stormwater management. Another potential issue is that uneven rates across watersheds may lead to an impression of inequity among ratepayers in the same county. This should not pose a problem, however, because a precedent for uneven rates already has been set by water and sewer utilities.

Case Example: pages 97, 98, 99, 100, 101

IDEA: Extend State Revolving Fund (SRF) to include a broader borrowing base (the private sector) and wider application to nonpoint source pollution controls

Description: The extension of the SRF to finance private sector capital projects and nonpoint source pollution control projects would make funds available to the private sector for activities such as enhanced stormwater management, erosion and sediment controls, public sewer extensions to failing septic areas and more *(see page 26 for full description).*

Mechanism: Loan and Redirection of Existing Program.

Action Needed: Amend the Maryland Water Quality Financing Administration Act to permit loans to the private sector. In addition, changes must be made in the federal Clean Water Act to allow for loans to the private sector.

Issues to Consider: The public sector would now compete with private and public/private borrowers for available SRF funds, unless a portion of the SRF program was dedicated only to public sector borrowers. Loans to private parties would reduce the amount of federal and state funds available to be leveraged with tax-exempt bonds.

Case Example: pages 92, 93

IDEA: Special Assessment District (e.g. retrofit/conversion, stormwater management, septic connections to sewer)

Revenue Generated/Redirected: Recovery of cost of improvements.

Description: A special assessment district is an independent government entity formed to finance governmental services for a specific geographic area. Residents of special districts pay taxes to finance the improvements that will benefit them. At a local level, special districts, such as sewer districts, stormwater management districts, retrofit/conversion districts, etc., have been formed to finance specific improvements. Special districts may issue revenue bonds to finance capital facilities independently, relieving the burden on general debt capacity.

Mechanism: Bond, Fee, Surcharge.

Action Needed: Enabling legislation. Designation of special district. Issuance of revenue bonds by local government. Local authority to levy special tax increase in an improved area.

Issues to Consider: Ability of district to recover costs of retrofits/conversions. Costs are borne only by the taxpayers of the special assessment district.

IDEA: Tax Increment Financing (Value Capture)

Revenue Generated/Redirected: Revenue potential is very case-specific.
Description: This technique requires the creation of a special district when a government-financed enhancement is made that benefits the residents of the special district. From that time on, two sets of tax records are maintained for the district—one that reflects the value of assets up to the time of the enhancement, and a second that reflects any growth in assessed property value in the district after the enhancement. The second, incremental portion of tax revenues are diverted to pay for the cost of the government financed project in the special district. In some cases, governments issue tax increment bonds for revitalization projects, with the bonds being backed, in part, by the anticipated increase in property values resulting from the investment (value capture).

Pure tax increment financing differs from a special assessment in that property tax rates are not increased. Special assessments, on the other hand, increase the tax rate to raise additional revenues from an area that has received special benefits not provided to everyone (see Special Assessment District).
Mechanism: Surcharge.
Action Needed: Local ordinance to designate a special fund and create a special district. Issuance of revenue bonds by local government. Timely property value assessments.
Issues to Consider: Such approaches are considered more equitable because the beneficiaries pay for the benefits. If others also benefit, say from reduced nutrient loads that enhance downstream waters, it may be reasonable to supplement the project cost with some general revenues. Local governments should prepare contingencies in case anticipated increases in property values fall short of what is needed to repay the investment. It should be noted that many areas of failing septic systems are low income neighborhoods and residents may not look favorably on having the value of their property, and thus the amount of property taxes, increased. In extreme cases, residents may be unable to pay, and would feel pressure to relocate.

IDEA: Sale of Municipal Utility Assets to Private Sector

Revenue Generated/Redirected: Estimate not known.
Description: Local governments could tap an additional source of capital if they sold such municipal utility assets as water mains and pumping stations to private investors interested in reducing their tax obligations. Private companies like AT&T and BGE depreciate their assets, such as telephone and electric power lines, over the period of the assets' useful life (30 years or more). If municipal utility assets were purchased by the private sector (profitable corporations, businesses or wealthy individuals), investors could take advantage of this depreciation schedule and enjoy several years of reduced tax obligations. The maintenance of the asset would remain with the municipality and ownership of the utility asset would revert to the municipality at the end of the depreciation schedule.
Mechanism: Public/Private Partnership.
Action Needed: Enabling legislation; marketing of concept.
Issues to Consider: New source of capital not previously tapped—does not affect state's debt capacity.

IDEA: Use of federal or state housing grants to finance public sewer extensions to areas with failing septic systems

Revenue Generated/Redirected: Approximately $4 million per year.
Description: The Maryland Small Cities Community Development Block Grant Program (CDBG) is a federally funded program designed to assist local government with neighborhood revitalization, housing, economic development and improved public facilities and services. The state's program has been designed so that at least 70% of allocated funds will be used to principally benefit low and moderate income (LMI) persons.

Maryland's program provides public funds for activities which meet one of the national objectives: "Gives maximum feasible priority to activities which will benefit LMI persons and households having an income equal to or less than the low income limits established by HUD; Aids in prevention or elimination of slums or blight; Meets community needs of an urgent nature or that are an immediate threat to community health and welfare."

Eligible activities include loans and grants to public or private non-profit entities for the installation of public facilities, site improvements and utilities and payment of non-federal share required in connection with a federal grant-in-aid program.

Mechanism: Redirection of existing program.
Action Needed: Request under Community Development or Special Projects programs. Qualification for one of the national objectives.
Issues to Consider: Grants are very competitive. Projects are selected from annual project needs list as well as a list of emergency projects. Involves restrictions. Only projects in already developed areas qualify. Only LMI persons qualify. Additional source of funding for correcting/eliminating failing septic systems. This grant depends on the community's ability to fund the project through other sources. Could also be used for other wastewater, stormwater management and retrofits/conversion projects as well as water related projects. Stretches state and local funding if federal dollars are added. Sewer extensions may lead to unintended growth and development in adjacent areas.

IDEA: Annual user fee for the depletion/degradation of aquifer

Revenue Generated/Redirected: Approximately $12 million per year.
Description: The concept is for a state, local government, or watershed district to charge an annual "aquifer impact fee" of $36.00 per septic system owner. An analogous "aquifer withdrawal fee," managed by drinking water agencies, could be charged to owners of on-site wells. These represent charges for the use (depletion and degradation) of the aquifer. The fees would be directed to funds dedicated to remediation of problems caused by failing septic systems and the protection of drinking water sources. Fee rates could differ for residential and business users.
Mechanism: Fee.
Action Needed: Enabling legislation.
Issues to Consider: Generates new revenues. Captures revenue from households and businesses which are not connected to municipal sewers, but have an impact on water quality via effluent treatment or as a result of septic system failures. Provides a fund pool similar to insurance to pay for correction of failures. Could expand the septic service business sector. May encounter local government and citizen opposition. May be difficult to identify and track owners of wells and septic systems.

IDEA: Full-Cost Pricing of Service Fees

Revenue Generated/Redirected: $75,000 per year per service personnel.
Description: Modify existing fee systems associated with construction oversight to cover more or all of the cost. The fee system should ensure

that staff, equipment and overhead costs associated with plan reviews and inspections are covered by fees. The fee system could be a formula based on project complexity or an hourly rate for service time devoted to a project. Time not spent directly on a project would have to be covered by another funding source (see e.g., Stormwater Management Utility Fee, or General Funds).

"Full-Cost" pricing refers to two concepts. First, as an economic concept, it refers to internalizing environmental costs within the market, thus attempting to capture the "full-cost" of development. Second, in a more common sense manner, it refers to covering the full-cost associated with public sector reviews of regulated activities.

Mechanism: Fee.

Action Needed: Changes in local ordinances, public education, coordination with other funding mechanisms (stormwater utility fees, general fund allocations).

Issues to Consider: One major issue is, "who pays?" The full-cost pricing approach shifts a larger portion of the cost from the general tax payer to those who benefit from development and new construction. The remaining portion of the cost would be shared by the general public who benefit from a healthy environment.

Because of seasonal and economic fluctuations in development activities, funding dependent solely upon service fees is likely to fluctuate, thereby affecting staff levels. To minimize these fluctuations in staffing levels, it may be necessary to diversify funding sources. Another implementation issue is "acceptability" among the development industry. It is likely that the shift in funding from the general taxpayer to the development industry would only be accepted if it were phased in over time.

Recent comparisons of public versus private methods of "doing business" have been critical of government approaches to setting fees. They note the obvious: setting fees below the cost of services results in revenue streams that are inadequate to cover costs. This has resulted in the need to subsidize the service with general tax revenues. In addition, service fees set below costs encourage greater demands on the service than would full-cost pricing. Such increased demands, in turn, artificially increase the need for the service and waste natural resources.

IDEA: Lawn and Garden Fertilizer Surcharge

Revenue Generated/Redirected: 2% surcharge would likely generate $1-3 million per year.

Description: Retail (non-farm) sales of fertilizer are currently included in

Maryland's general sales tax. An environmental surcharge on retail fertilizer products, based on the nitrogen and phosphorus content, could generate revenues for needed Tributary Stategy activities and also serve as a disincentive for over-application of fertilizer on lawns and gardens.
Mechanism: Surcharge.
Action Needed: Legislative changes to sales tax laws.
Issues to Consider: Fertilizer surcharges are consistent with the notion of fairness in that they target those that benefit from nutrient use and, sometimes, overuse. However, current public and political sentiment does not favor any additional surcharges.

IDEA: One-time septic system installation impact fee

Revenue Generated/Redirected: $1 million to $1.5 million per year. Assumes $100 fee per system, and 10,000 to 15,000 systems installed each year.
Description: The concept is to charge a one-time "aquifer impact fee" for the installation of a new on-site sewerage system. A similar one-time "aquifer withdrawal fee" could be charged for the installation of on-site wells. These represent charges for the use (depletion and degradation) of the aquifer. The fees would be directed to funds dedicated to remediation of problems caused by failing septic systems and the protection of drinking water sources.
Mechanism: Fee.
Action Needed: Local ordinances, State legislation (if the funds are governed by watershed authorities).
Issues to Consider: This system of charges is based on direct impacts and benefits of the aquifer and watershed resources. The system generates new revenues and provides a fund pool, similar to an insurance fund, to pay for correcting failures. The linkage of the fee to a specific aquifer and watershed raises awareness of the direct cause and effect of individual actions. It is fair because those served by public sewer indirectly pay similar fees via their sewer bills. It also provides a vehicle for education to improve awareness of the need to regularly maintain septic systems, which saves money in the long run. This, in turn, could help expand the septic service business sector. Public education of the need and benefits would be necessary to overcome potential opposition.

IDEA: Apply Community Re-investment Act requirements for local investment to environmental projects such as tree planting, stream restoration, stormwater retrofits, etc.

Revenue Generated/Redirected: Estimate not known.

Description: The Community Re-investment Act (CRA) was passed by Congress in 1977 in response to the poor record of many banks in making loans and providing services in low income neighborhoods. The CRA requires banks to be rated annually to ensure that minimum community re-investment standards are met. However, although 89% of banks pass these ratings, Congress still feels that banks continue to fall short in providing services to the community. Current federal CRA requirements are very general, but the State could pass legislation with more specific guidelines about activities that are eligible under the CRA. These guidelines could include environmental projects, such as redevelopment and in-fill development to encourage concentrated growth; urban forestry; stream restoration; agricultural best management practices; etc.

Mechanism: Public/Private Partnership.

Action Needed: State legislation.

Issues to Consider: The Community Reinvestment Act represents a new, previously untapped source of potential funds for environmental projects. Using banks for this purpose could potentially divert funds from other community needs, such as low-income housing. However, if environmental activities are offered as one of several eligible areas for CRA investment, banks could choose which activities they prefer to focus on.

New York State proposed its own CRA, which includes a checklist of eligible activities (NY's does not focus on environmental investment). An alternative to a checklist would be to require banks to develop an Environmental Re-investment Program, whose activities would be reviewed by an existing or specially appointed Commission.

AGRICULTURAL LANDS

Agriculture is the most extensive land use, other than forest, in Maryland and the Chesapeake Bay watershed. Modern agriculture relies on nutrient inputs, whether from commercial fertilizer or organic sources. Unpredictable rainfall patterns result in frequent drought and make yields (and thus fertilizer need) difficult to estimate. As a result of these factors, some nutrients are lost to ground and surface waters.

Farmers, recognizing the need for good stewardship, have used practices to reduce erosion and more efficiently manage nutrients for decades. In addition, lost nutrients represent an economic loss to farmers. The agricultural Tributary Strategies uses a combination of old and new practices in addition to already implemented measures to reach our reduction goal. Conservation planning, nutrient management, no-till, animal waste management, stream protection from livestock and cover crops are all important parts of the strategy. Areas with high animal populations or inadequate waste management systems may have excessive nutrients to use at the proper rate or timing on the available land.

Current public expenditures for agricultural practices are low in light of the importance of these practices in reaching Tributary Strategy goals. As a result, the proportional shortfall in funding for agriculture is higher than for other categories. While funding has previously been directed to point source and developed land nutrient sources, additional resources will need to be directed to agriculture if goals are to be met.

Farmers are also in a unique situation in which they have no control of market prices for what they produce and thus cannot pass along increased costs of production. In addition, conflicting societal goals of wanting inexpensive food and wanting the farmer to pay for nutrient control measures without cost to the consumer add to these problems.

Based on the situation described above, ideas proposed to address agricultural funding shortfalls are focused on providing cheaper capital to farmers, increasing cost-share and incentives, tax credits, and surcharges to spread costs to all who benefit. An environmental "check-off" paid by farmers on all goods they produce is recommended as is the development of farmer environmental cooperatives with access to state revolving loan funds. Incentives include increasing the cost-share cap for livestock waste storage structures and expanding conservation equipment tax deductions. To assist private sector delivery of conservation services, large agricultural companies could provide these services and then be repaid as the farmer accrues savings from implementation. This would be similar to energy conservation programs offered by utilities.

Finally, it was recommended that a surcharge could be added to existing prepared food and beverage sales taxes.

While time constraints prevented the list of ideas from being exhaustive, new ideas were proposed, modifications to existing programs were explored and some old ideas resurfaced.

AGRICULTURAL LANDS: LIST OF FUNDING MECHANISMS

IDEA: Develop local agriculture cooperatives on a watershed basis to assist farmers in financing activities

Revenue Generated/Redirected: Revenue neutral—can improve access to capital and possibly reduce borrowing costs to farmers.

Description: A local cooperative governed by a board of farmers could help members obtain loans from existing programs or financial institutions, or could leverage available funds through financing institutions, such as banks. Co-ops could secure or guaranty loans by putting up collateral for borrowings. By using their greater size, co-ops may be in a better position to influence policy decisions, not just within government, but in the private sector as well, increasing the availability of funds dedicated to agriculture.

Mechanism: Private Initiative/Incentive.

Action Needed: Formation of Cooperatives.

Issues to Consider: Farmers interest in this concept has not been explored. There may be concerns expressed by relatively debt-free farmers who are being asked to support debt-laden farm operations within the same cooperative. Loans obtained by the cooperative for farmers would not help those farms that cannot support additional debt costs. In addition, borrowing money for non-revenue generating structures such as animal waste storage facilities can be expensive and often difficult to obtain.

The co-op is in a better position to take advantage of any funds that may become available from any changes in the State Revolving Fund (SRF) suggested in this report.

IDEA: Extend State Revolving Fund (SRF) to include a broader borrowing base (the private sector) and wider application to nonpoint source pollution controls

Description: Extending the SRF to finance private sector capital projects and nonpoint source pollution control projects would make funds available to the agricultural community for activities such as the building of animal waste storage systems and other capital-intensive projects *(see page 26 for full description).*

Mechanism: Loan and Redirection of Existing Program.

Action Needed: Amend the Maryland Water Quality Financing Administration Act to permit loans to the private sector. In addition, changes must be made in the federal Clean Water Act to allow for private loans for point source projects.

Issues to Consider: Farmers who are not in a position to assume additional debt would not benefit from any new loan program.The farmer would now compete with the public sector and with other private and

public/private borrowers for available SRF funds, unless a portion of the SRF program was dedicated only to farmers. Loans to private parties would reduce the amount of federal and state funds available to be leveraged with tax-exempt bonds.
Case Example: pages 92, 93

IDEA: Require nutrient management plans on all Maryland Agricultural Land Preservation Foundation easements

Revenue Generated/Redirected: Revenue neutral; increases acreage with nutrient management plans.
Description: Approximately 10,000 acres of agricultural land is preserved, in perpetuity, each year through the Maryland Agricultural Land Preservation Program. Soil Conservation and Water Quality Plans (SCWQP) are currently required for all land in the program. Nutrient management and SCWQP are two of the key agricultural practices in the Tributary Strategies. This idea would require that nutrient management plans as well as SCWQP be required on all easements.
Mechanism: Redirection of Existing Program.
Action Needed: Recommend to Maryland Agricultural Land Preservation Board that they consider requiring nutrient management plans on all future easements.
Issues to Consider: This idea assures that land preserved for agricultural use will be farmed using nutrient management plans. It may also increase total acreage under nutrient management plans. There is some concern that increasing the requirements in order to be considered for a preservation easement may reduce the interest of some farmers to enter the program.

IDEA: Expand tax deduction for conservation tillage and animal waste handling equipment to include other environmental equipment

Revenue Generated/Redirected: Revenue neutral.
Description: Farmers are currently able to deduct the full purchase price of conservation tillage equipment from their taxes in the year of purchase. The Conservation District certifies that the equipment qualifies. The expansion of this deduction to other environmental equipment would provide an incentive for purchasing it. Initially, the deduction should be expanded to include manure spreaders, but after additional evaluation, other equipment such as waste storage structures and precision farming (computer controlled, variable rate fertilizer and pesticide application) equip-

ment could be added. It may also be feasible to allow deductions for services such as nutrient management or conservation planning and integrated pest management.
Mechanism: Redirection of Existing Program.
Action Needed: Legislative authorization to amend the tax deduction for conservation tillage and animal waste handling equipment to include other environmental equipment.
Issues to Consider: The conservation tillage tax deduction has been very successful. Expansion of the deduction to manure spreaders may be proposed in the 1995 legislative session. Further expansion of this concept for other equipment and private sector environmental services could substantially increase practice implementation.

The deduction allows "instant" depreciation, but is still not as direct an incentive as partial tax credits on conservation equipment offered in some other states.
Case Example: pages 103, 104

IDEA: Purchase of environmental easements by the private sector

Revenue Generated/Redirected: Estimate not known.
Description: This idea would allow purchase of easements on farm or forest land. The easements would require use of best management systems to minimize environmental impact as long as the land is farmed or forested. Required practices should include nutrient management, soil conservation and water quality plan implementation, integrated pest management, use of cover crops, animal waste management, stream fencing, forest buffers, forest stewardship plans, streamside management plans, and other appropriate forest best management practices. The easement would be in perpetuity and all future farm operators must use these practices. Applicable practices would continue through covenants and deed restrictions.

This type of easement would not — as traditional conservation easements do — protect farmland from future development.
Mechanism: Public/Private Partnership.
Action Needed: Legislative authorization of easement purchase and allocation of funds to run the program.
Issues to Consider: This idea would assure that land is being farmed using a broad group of environmentally protective practices. It would also assure that those practices applicable during and after development would continue. If payments are adequate, they may provide incentive for adoption of practices that are currently not cost effective such as forest buffers and cover crops.

IDEA: Surcharge on prepared food and beverages

Revenue Generated/Redirected: $0.005 surcharge—$40 million per year. $0.0025 surcharge—$20 million per year.
Description: A surcharge would be added to the existing prepared food and beverage sales tax. Revenues generated would be dedicated to provide cost-share, technical assistance and education to address nonpoint sources of pollution to the Chesapeake Bay. Initially, the funds would be used to address agricultural issues, but could be broadened to include urban/suburban nonpoint sources of pollution such as septic tanks, lawn management, etc. The surcharge may be time limited (e.g. 10 years) with optional renewal by the General Assembly.
Mechanism: Surcharge.
Action Needed: Legislation to amend food and sales tax to add Chesapeake Bay surcharge.
Issues to Consider: All citizens of Maryland contribute to pollution of the Chesapeake Bay. A recent survey conducted for the Bay Program indicated overwhelming support of restoring the Bay. A large majority indicated they would be willing to pay more as long as they knew the funds would be used to restore the Bay. A surcharge on the existing prepared food and beverage tax dedicated to cost-share, technical assistance and education to increase implementation of Tributary Strategy practices is the least regressive tax available to provide the needed revenue. The surcharge could be time limited with renewal based on continuing needs at the time.

Current public and political sentiment does not favor any new surcharge, even if it is not regressive. If such a surcharge is developed, it must be designed so that nearly all of the revenues go directly to cost-share, technical assistance, and educational programs with minimal administrative and management cost.

IDEA: Environmental "check-off" for all agricultural products

Revenue Generated/Redirected: $2–10 million per year.
Description: Agricultural check-offs have a long history of producing small to medium amounts of money to support research, education and promotion for specific commodities. In Maryland, corn and soybean check-offs generate several hundred thousand dollars per year. A check-off requires that every farmer who markets a certain commodity pays a fee for each unit (usually bushel or pound) that he/she markets. Produc-

ers of a commodity vote on establishing a check-off and at specified time periods, vote on renewal. If a majority vote favorably, a small surcharge is added to each unit of production when it is marketed. The funds generated are managed by a board of farmers.

An environmental check-off would be far broader than any existing, but could be established and function similarly. The funds generated could be used to provide cost-share for non-structural practices such as cover crops, provide incentives for adoption of new, non-cost effective practices, pay for private sector technical assistance to farmers and/or for education.

Mechanism: Fee.

Action Needed: Legislation to authorize a check-off vote and development of specific rules and regulations governing the board and the funds.

Issues to Consider: This would generate funds that could be used with greater flexibility to assist farmers with implementation of new practices. Over time, most farmers would have the potential to benefit, but it could initially be directed to areas of greatest need. The check-off would represent the farm community coming together to address environmental issues. As such, this could be used to leverage additional funds to support agricultural practices and would be a tremendous example to the public of agriculture's proactive commitment to the environment.

The check-off would take additional money out of an already weak farm economy. Many farmers will feel they are doing all needed practices and will not benefit from the funds.

Additional Ideas: Since everyone benefits from minimizing pollution from farms and from the cheap price of food, it can be argued that the public should contribute to the check-off. If the state provided the board with funds to match check-off receipts, the concept might be more acceptable to farmers and be able to accomplish more.

IDEA: Increase cost-share cap for livestock waste storage systems from $35,000 to $50,000 per system

Revenue Generated/Redirected: Revenue neutral.

Description: The current maximum cost-share for animal waste storage systems is $35,000. It is proposed that the maximum cost-share be raised to $50,000 per system.

Mechanism: Redirection of Existing Program.

Action Needed: Change the Maryland Agricultural Cost-Share (MACS) Law.

Issues to Consider: A recent review of actual costs of livestock waste storage structures cost-shared through the MACS program indicated an av-

erage cost greater than $55,000 with some systems more than $90,000. Most other practices, including poultry waste storage structures are cost-shared at a rate of 87.5% of actual cost. The current limit of $35,000 for waste storage structures means that farmers can only receive 30% to 60% of actual cost. Raising the limit for livestock waste storage structures would reduce this apparent inequity.

There are currently inadequate cost-share funds to support all the practices needed for the Tributary Strategies. Increasing the amount paid for a practice without increasing cost-share funding will decrease the number of practices that can be implemented.

IDEA: Conservation services incentive programs by major agricultural companies (comparable to electric utility energy conservation programs).

Revenue Generated/Redirected: Estimate not known. Industry would pay initial cost of nutrient management and/or conservation planning.

Description: The electric utility industry has found it cost-effective to pay for installation of energy conserving equipment in homes and recover the cost, over time, out of savings in consumers' electric bill. Nutrient management plans usually save farmers money. Conservation plans and animal waste storage systems can save money or increase productivity. A large agricultural fertilizer or farm service company could develop nutrient management, conservation or animal waste management plans for farmers with an agreement that requires repayment for plan development over time out of the savings realized by the farmer.

Mechanism: Private Initiative/Incentive.

Action Needed: Private company develop conservation services program.

Issues to Consider: Farmers are frequently unable or unwilling to pay for conservation planning services. This idea would provide a mechanism where the farmer would be paying for the services after the fact from the savings resulting from the service.

Interest would need to be included in the repayment. Developing an agreement defining savings and repayment may be difficult. A large initial expenditure would be required of the company before seeing a return. This would likely limit such a program to the largest agricultural companies with substantial assets.

RESOURCE PROTECTION

Resource protection options include a range of practices designed to protect forests, wetlands, and other natural areas. These ecosystems generate fewer nutrients than any other land use, and some, such as forests and wetlands, actually function as nutrient filters. In addition, healthy and diverse fish and wildlife populations—such as oysters, which filter nutrients from Bay water—capture and cycle nutrients as part of their life cycles, helping to reduce harmful impacts. Among the resource protection options, a priority will be to increase forest buffers along streambanks and to protect existing buffers. In addition to removing nutrients, stream buffers on agricultural and developed land improve habitat for fish and other stream life. The conservation of all types of forested land, which will be greatly enhanced by the 1991 Forest Conservation Act, will also contribute significantly to the nutrient goals.

Shore erosion controls—primarily stone revetment, or the planting of marsh grasses, depending on the suitability of the site—prevent the loss of tons of sediment into the Bay, and the nutrients that are carried along with it. Sediment and nutrients will also be controlled by expanding the implementation of best management practices by commercial forestry operations. Finally, a new law requiring large and expanding marinas to install pumpout facilities for boaters will reduce nutrient pollution from marine sewage.

At least $1.9 million per year, in addition to funds already being spent, will be needed to fund resource protection practices as part of the Tributary Strategies. These funds are needed to meet operating costs, which include materials (e.g. tree seedlings and marsh grasses), technical staff, and training/education efforts. Not included in this figure are funds needed for practices such as stream restoration and growth management, which are also an integral part of the Tributary Strategies.

Financing ideas for resource protection discussed by the Panel fell into three broad categories. First, several ideas tapped the strong public sentiment in favor of protecting and restoring water quality and wildlife habitat. These ideas—which included creating new habitat stamps patterned on existing duck stamps, expanding the existing Bay license plate program, or establishing an endowment fund—have the potential to generate modest revenues, as well as increase public awareness of Bay restoration efforts. Although the funds generated from such programs are an important and traditional source of funding for resource protection activities, they are not adequate to meet the substantial need for tree planting, stream restoration, and habitat protection activities throughout the State.

The second category of ideas discussed by the Panel included ideas to incorporate funding for resource protection practices into large, stable funding sources for water quality. Such sources include the existing State Revolving Loan Fund (SRF), which could be used for a much wider range

of activities than it currently does, or a new "environmental fund" that could be created from a variety of sources in order to address priority nonpoint source problems on a watershed basis.

Finally, the Panel discussed several ideas to improve the efficiency or incentives offered by existing programs. These suggestions are not the result of a comprehensive evaluation of these programs. Rather, they represent opportunities for additional savings or participation that the Panel wishes to encourage. Such ideas included encouraging the establishment of forest mitigation banks at the county and state level in order to maximize tree planting opportunities through the development process or incorporating tree planting into the Clean Air mitigation process, so that developers and industries can receive "credits" for trees planted to offset carbon emissions in non-attainment areas. Other ideas will improve the effectiveness of existing incentive programs, such as the recommendation to increase payments to landowners to plant forest buffers along streamsides.

Additional Considerations

The Panel discussed several ideas which need further investigation, and endorsed some ideas which may need new legislation. The Panel agreed that transferring development rights has strong potential for managing growth, a key to maintaining the cap on nutrient pollution. However, additional efforts must be made to identify incentives for receiving areas in order to apply this concept statewide. Similarly, forest mitigation banking has the potential to expand the reforestation of sensitive areas. Legislation to establish standards for county forest mitigation banks was proposed in 1994, but failed to pass. Passage of the bill in 1995 will help get this promising effort off the ground.

Perhaps the greatest potential for resource protection practices is their integration into stable, established funds that have already been created for similar purposes. The potential for using State Revolving Loan funds for shore erosion controls, stream restoration, or tree planting projects should be investigated. The state could also pass legislation to explicitly authorize Community Re-investment Act requirements—which require banks to invest in community development projects—to apply to environmental enhancements such as urban forestry or stream restoration. Finally, the Panel strongly endorsed a watershed-based approach to pollution control, which would allow a comprehensive assessment and ranking of nonpoint source problems and solutions.

Resource Protection: List of Funding Mechanisms

Idea: Establish forest mitigation banking systems at state and county levels

Revenue Generated/Redirected: Estimate not known. Cost of planting trees is passed on to the development community and new homeowners.

Description: The Forest Conservation Act (FCA,1991) and the Nontidal Wetlands Act (1989) each have requirements for mitigation under certain circumstances when forests or wetlands are impacted by development. Mitigation is preferred on-site, but may be performed offsite if an appropriate location is not available on-site, or if other criteria are met. Maryland's Department of Natural Resources (DNR) has created a wetlands mitigation banking program at the state level, but no formal mitigation banking system has yet been created for forestry. The program is regulated by DNR, and implemented by local governments for local projects. Carroll County is in the process of developing a forest mitigation bank, and at least one private firm has been formed to facilitate the mitigation requirements of developers by identifying appropriate mitigation sites, implementing the required mitigation, and maintaining the mitigated area.

Mechanism: Private Initiative/Incentive.

Action Needed: Legislative authorization would encourage the formation of county or watershed-based banks, and may be needed to create a state bank.

Issues to Consider: Banks at both the state and county/watershed level are recommended. A state-wide bank should be created to provide mitigation opportunities for projects that impact state lands. This would also serve as a model for banks at the county/watershed level. County and watershed banks would be available to developers with projects impacting private lands.

Buffers have been designated high priority areas for mitigation under the FCA.

Existing regulations create a market for tree planting, but finding appropriate receiving sites is often difficult. Forest mitigation banks create a framework for matching those with mitigation requirements with those with suitable receiving sites. By facilitating the mitigation process, they can lower development costs as well as providing an incentive to private landowners to plant trees.

The environmental community is concerned that banking can be a disincentive to protect forests on development sites. In addition, locating appropriate sites for mitigation can be staff intensive at the state or county level.

IDEA: Create incentives for Transferable Development Rights' (TDR) receiving areas

Revenue Generated/Redirected: Estimate not known.

Description: TDRs compensate landowners in "sending areas" (usually agricultural or resource lands) for the equity in their land by using private money. This technique has been a proven success in a number of communities. However, TDR programs are often difficult to establish because receiving communities are reluctant to accept higher density development. Providing adequate incentives for receiving areas will increase their availability for TDRs, thereby increasing interest in purchasing development rights from agricultural and forested lands.

Mechanism: Private Initiative/Incentive.

Action Needed: Identify sending and receiving areas in the comprehensive plan consistent with development and preservation goals. Establish receiving areas in development districts with enough capacity to absorb the development rights from the sending areas. Develop flexible zoning and design standards in the receiving areas. Streamline the TDR administrative process.

Issues to Consider: Possible incentives include access to public transportation or other amenities. Some of these will require additional funding; others could be accommodated by giving receiving areas a high priority in transportation and other planning processes.

Case Example: page 105

IDEA: Statewide Purchase/Transferable Development Right Bank (PDR/TDR)

Revenue Generated/Redirected: Does not generate new funds; would administer funds provided through other sources.

Description: A PDR/TDR bank could be developed and funded with transfer tax revenues, general obligation bonds, and local government contributions. Such a bank could be formed by a state and local government partnership, a nonprofit entity, or some combination. In any jurisdiction in the state with a purchase or transfer of development rights program (or both), the bank would purchase the development rights of agricultural or resource land. The bank could either extinguish the rights or sell them as TDRs to developers to raise money to purchase more rights.

Mechanism: Public/Private Partnership.

Action Needed: Requires legislative action.

Issues to Consider: A bank provides a central market for TDR purchases and sales and would lend credibility to TDR programs. It would also help

stabilize fluctuations in TDR prices, and could be a ready buyer of TDRs in hardship cases.

A bank would help provide a mechanism for TDRs, but needs to be coupled with incentives for receiving areas.

Case Example: page 105

IDEA: Environmental Trust Fund

Revenue Generated/Redirected: Estimate not known ($15 million in Kansas; $44 million in Washington State).

Description: This idea draws on the example of dedicated Funds that have been established in several states for a wide variety of conservation practices. These Funds may be funded through a variety of mechanisms. In Washington State, $21 million is collected from the statewide real estate tax, $19 million from solid waste fees, and $4 million from water and sewer fees collected from utilities. This Fund is used to provide low-interest loans to local governments to repair leaking sewer lines, build stormwater facilities, and other projects which remove a significant threat to public health. Kansas has a State Water Plan Fund, a dedicated fund shared by seven state agencies involved in maintaining and restoring water quality. The Kansas Fund is fed by general fund appropriations, lottery proceeds, municipal, industrial and agricultural water use fees, pesticide and fertilizer use fees, and environmental fines.

Mechanism: Usually a combination of mechanisms.

Action Needed: Identify sources of revenue for the Fund; create administrative procedures to facilitate interagency cooperation.

Issues to Consider: A large Fund has the resources to undertake necessary projects, as well as the flexibility to address the most critical needs first. To be effective, it must have one or more reliable sources of funding, many of which are discussed elsewhere in this document. Without new revenue, the Fund would likely divert some money from existing environmental efforts.

IDEA: Mini-bonds for tree planting, stream restoration, etc.

Revenue Generated/Redirected: $5–10 million.

Description: Mini-bonds are bonds issued in small denominations (e.g. $500) available for purchase by the general public. Additional $10 million debt authorization specified for Bay related projects to be issued in

the form of Bay mini-bonds.
Mechanism: Bond.
Action Needed: State policy decision and legislation needed.
Issues to Consider: The cost of issuing the bonds can be a significant barrier to their use. Typically, the cost of issuance per $1,000 of bond is $6-8. In 1990, the state-issued mini-bonds cost $11.80 per $1,000, and in 1991, the cost was $17.10. These costs include the bond counsel fee, charges by rating agencies, and administrative expenses of printing and distributing financial statements. Administrative costs are the largest component due to the large number of bond holders. These costs could be potentially reduced by soliciting donations of time and services from bond service departments of banks and bond counsels.

A stable funding source is needed to repay the bonds. In the past, bonds were repaid from General Funds. Suggested ideas for repaying Bay mini-bonds included funds from the income tax checkoff, the Bay license plates, or a lottery. Using funds from the tax checkoff or the license plate would divert funds currently used by the Chesapeake Bay Trust for environmental education and resource protection projects.

"Bay bonds" would probably be politically popular, and would increase public awareness of Bay issues. Their influence could also be expanded if purchasers were asked to sign an "agreement" to adopt environmentally friendly practices; or if environmental education information was sent out with Bay bond materials.

IDEA: Apply Community Re-investment Act requirements for local investment to environmental projects such as tree planting, stream restoration, stormwater retrofits, etc.

Revenue Generated/Redirected: Estimate not known.
Description: The Community Re-investment Act (CRA) was passed by Congress in 1977 in response to the poor record of many banks in making loans and providing services in low income neighborhoods. The CRA requires banks to be rated annually to ensure that minimum community re-investment standards are met. However, although 89% of banks pass these ratings, Congress still feels that banks continue to fall short in providing services to the community. Current federal CRA requirements are very general, but the State could pass legislation with more specific guidelines about activities that are eligible under the CRA. These guidelines could include environmental projects, such as redevelopment and in-fill development to encourage concentrated growth; urban forestry; stream restoration; best agricultural management practices; etc.
Mechanism: Public/Private Partnership.

Action Needed: State legislation.
Issues to Consider: The Community Reinvestment Act represents a new, previously untapped source of potential funds for environmental projects. Using banks for this purpose could potentially divert funds from other community needs, such as low-income housing. However, if environmental activities are offered as one of several eligible areas for CRA investment, banks could choose which activities they prefer to focus on.

New York State proposed its own CRA, which includes a checklist of eligible activities (NY's does not focus on environmental investment). An alternative to a checklist would be to require banks to develop an Environmental Re-investment Program, whose activities would be reviewed by an existing or specially appointed commission.

IDEA: Extend State Revolving Fund (SRF) to include a broader borrowing base (the private sector) and wider application to nonpoint source pollution controls

Description: Extending the SRF to finance private sector capital projects and nonpoint source pollution control projects would make funds available to the private sector for activities such as stream restoration and structural shore erosion controls *(see page 26 for full description).*
Mechanism: Loan and Redirection of Existing Program.
Action Needed: Amend the Maryland Water Quality Financing Administration Act to permit loans to the private sector. In addition, changes must be made in the federal Clean Water Act to allow for private loans for point source projects.
Issues to Consider: The public sector would now compete with private and public/private borrowers for available SRF funds, unless a portion of the SRF program was dedicated only to public sector borrowers. Loans to private parties would reduce the amount of federal and state funds available to be leveraged with tax-exempt bonds.
Case Example: pages 92, 93

IDEA: Allow individual property owners to receive loans for structural shore erosion control without being required to join a designated district

Revenue Generated/Redirected: Revenue neutral. Would increase access to existing program.
Description: Currently, the structural shore erosion control program administered by the Department of Natural Resources (DNR) requires landowners applying for a zero-interest, 30-year loan to be in a designated

shore erosion control district. This restriction was created in order to target shrinking funds, and to help ensure a consistent erosion control approach along a given stretch of shoreline. However, the current restriction limits access to the program, and may hamper the program's ability to target on the basis of environmental concern.
Mechanism: Loan and Redirection of Existing Program.
Action Needed: Change in state policy.
Issues to Consider: Will speed implementation and increase access to program although this will also increase competition for limited funds. In addition, by increasing the pool of applicants, enables program to target priority areas more effectively.

IDEA: Adopt-a-crab/Adopt-a-Bay creature

Revenue Generated/Redirected: National Wildlife Federation charges $20 for an "adopt-a-whale" kit. Assuming the cost to produce and market the materials is $10 per kit, selling 5,000-20,000 kits would raise $50,000-200,000.
Description: This idea is based on the "adopt-a-whale" program created by the National Wildlife Federation and others. Individuals would be solicited to "adopt" a Bay creature. For a fee, participants would receive educational materials about their Bay creature.
Mechanism: Public/Private Partnership.
Action Needed: Assess cost-effectiveness of program; promotional effort.
Issues to Consider: This initiative ties in well with educational efforts. It may be best suited to an organization with existing public outreach efforts, such as the Chesapeake Bay Trust. In California, public/private partnerships have been formed around the "Adopt-a-beach" Program, which has focused on education, beach cleanup, and pollution prevention.

Relies upon private donations, which may vary from year to year. Could have significant administrative costs.
Case Example: page 102

IDEA: Expand commemorative license plate program

Revenue Generated/Redirected: The maximum generated through the Bay plates has been approximately $1 million per year.
Description: The existing Bay plate program could be expanded to cre-

ate a new commemorative plate each year in order to increase sales. Currently, $12 of the total $20 cost of plates goes to the Chesapeake Bay Trust for environmental education and conservation projects. Limited edition plates are also available for $100-500. Restrictions on the use and issuance of commemorative plates are set by legislation. However, the recipient of funds generated by the plates is designated by the Governor. Under current law, the recipient may not be a state agency.
Mechanism: Private Initiative/Incentive.
Action Needed: Currently, the law allows only one design at a time for plates. Designs are authorized for two years, and may be renewed. The current Bay plate is authorized until July 1996. Legislative authorization would be required to allow multiple or annual commemorative plates.
Issues to Consider: The Bay plate has been a very successful fundraising tool over the past few years. The plate provides visibility for Bay restoration efforts, as well as funding. There are differences of opinion as to whether a new plate (or multiple plates) would increase sales. Other states, such as Virginia and Florida, have multiple plates, but they are not believed to be as successful as the Bay plate.

Other "causes" are interested in using commemorative plates for other issues, so there is likely to be competition for the right to issue a commemorative plate.

In addition to commemorative plates, which are the "official" state plate and are marketed by the Motor Vehicle Administration, private groups may issue special plates. The cost of these plates (such as those issued by Ducks Unlimited or Towson State University) is set by the benefiting group, and is marketed by the group, not MVA. Special plates could be created for each tributary to fund local tributary activities.

IDEA: Create habitat stamps patterned after duck stamp program

Revenue Generated/Redirected: Estimate not known.
Description: Currently, the Department of Natural Resources (DNR) sells duck stamps, which are issued as a hunting license. Many people buy additional stamps for artwork. Maryland's duck stamp is selected on a competitive basis each year, which serves to increase the visibility of the program. This approach could be expanded to other activities requiring licenses (e.g. boats, fishing), or could be issued solely as collector's items to benefit conservation efforts (e.g. habitat, non-game species).
Mechanism: Fee.
Action Needed: Legislative action may be required.
Issues to Consider: DNR licensing staff believe that there is a limited

market for additional stamps because there are so many available at the federal and state level. In the past, DNR has offered deer stamps, trout stamps, and a Chesapeake Bay stamp. All have been discontinued (the trout stamp will be discontinued after this year) due to limited sales.
Case Example: page 106

IDEA: Tree planting for carbon sequestration or other air quality credits

Revenue Generated/Redirected: Would pass on tree planting costs to private sector by giving companies an incentive to plant trees to meet existing regulatory requirements.

Description: Under the Clean Air Act, companies pursuing activities that will increase particular air pollutants that are currently exceeding clean air standards in that area will be required to provide "offsets" for their polluting activities. Such "offsets" could include tree planting, as trees sequester carbon from the air.

Mechanism: Private Initiative/Incentive.

Action Needed: Could be part of Clean Air Act trading scheme, licensing requirements for new plants, or renegotiation of licenses for existing plants. Possible policy, legislative or regulatory changes needed.

Issues to Consider: If proven practical, could be incorporated into Clean Air banking system now being developed by Maryland Department of the Environment. Need to investigate potential regulatory/legal barriers.

Trees provide multiple benefits (e.g. nutrient reduction, habitat), in addition to carbon storage, but do not address other significant air pollutants.

Market-driven; cost effective method of offsetting carbon emissions. Also provides good public relations for utilities and others who plant trees.

Could be potentially difficult to allocate carbon credits to tree planting.

Program administration (e.g. tracking tree planting projects, tree survival, etc.) could be complex. However, this approach has been done on a voluntary basis. In 1989, a New England utility donated the cost of planting thousands of trees as part of a CARE reforestation project in Guatemala. The trees were planted to "offset" the additional carbon emissions created by the utility's expanded capacity. Currently, American Forests, a nonprofit organization (202/667-3300) coordinates a national program which assists corporations in planting trees where they are needed.

IDEA: Restore Buffer Incentive Program to $500/acre payment to landowners (payment has been cut from $500/acre to $300/acre)

Revenue Generated/Redirected: Please see page 52, "Environmental Trust Fund," for possible source of funds.

Description: Existing program administered by Department of Natural Resources (DNR) Forest Service provides one-time incentive payment to landowners to plant trees along rivers and streams. Forested buffers along streams filter nutrients from upland areas, as well as improving stream habitat by providing shade, food sources, and bank stability.

Mechanism: Private Initiative/Incentive.

Action Needed: Legislative action.

Issues to Consider: Current incentive payment ($300/acre) is not sufficient to offset the loss of income to the landowner when land along streams is taken out of agricultural production in order to plant forested buffers. In past years, $500 per acre payment has been an effective incentive.

Program funding has been unstable, and has been unable to guaranty funds for potential clients.

Increased participation in program will increase overall costs and may require additional technical assistantance.

IDEA: Create endowment fund for environmental protection and restoration (e.g. tree planting, stream restoration, acquisition of conservation easements, etc.)

Revenue Generated/Redirected: Estimate not known.

Description: A privately run endowment fund could be established through contributions from the private sector (possibly organized through the Chambers of Commerce). Interest from the fund would be used to pay for environmental restoration projects. The fund would coordinate with state agencies to target high priority areas.

Mechanism: Public/Private Partnership.

Action Needed: Private initiative to establish and run; creation of mechanisms to coordinate with state efforts.

Issues to Consider: Draws upon desire of business community to be associated with environmental stewardship, creating a public/private partnership for resource protection.

Could be coordinated with environmental education efforts to provide volunteer labor for projects.

Funding may be undtable from year to year, and could compete with other nonprofits for corporate funds.

IDEA: Issue credit card benefiting private environmental organization/fund

Revenue Generated/Redirected: Estimate not known.

Description: A major credit card could be issued to benefit a new or existing environmental organization. For each "affinity card," a fixed amount per card, and a small percentage (on the order of 0.5%) of the spending on the card is donated to the organization. The organization is generally partially responsible for marketing the card.

Mechanism: Private Initiative/Incentive.

Action Needed: Organization must work with bank to issue credit card.

Issues to Consider: Has been successfully used by many organizations. As a result, there may be considerable competition within this market. If successful, this is a good way to increase public awareness as well as raising funds. (The Chesapeake Bay Foundation already has issued an affinity card, so new efforts need to be distinguished from this one.)

In the past, checks with scenes of the Chesapeake Bay have been issued by a bank to raise funds for environmental efforts. A premium is charged for the checks, and the money is donated to environmental causes.

APPENDICES

Appendix A: Funding Mechanisms by Financing Type

Introduction

The Blue Ribbon Panel has endeavored to make the study and analysis of its report as user-friendly and practical as possible. Therefore, the following section has been arranged so that the ideas developed by the Panel are listed according to the type of financing or funding mechanism they represent, rather than by Tributary Strategy category (point source, developed land, agricultural lands and resource protection, found on pages 23-59).

Each idea listed in this section is described in full, repeating the same language found in the previous category section of the report. Icons (a pipe for Point Source, house for Developed Land, tractor for Agricultural Lands, and tree for Resource Protection) and a page reference indicate where each idea can be found in the Category section of the Report.

The seven financing types in this section include:

- **Bonds** — new bonds for new projects and a way to increase bond revenue
- **Fees** — which both raise funds and help insure equity
- **Loans** — these options primarily suggest changes in the State Revolving Loan Fund to increase its effectiveness and broaden its scope
- **Private Initiative/Incentive** — ideas to increase the participation of the private sector in the Bay cleanup
- **Public/Private Partnerships** — innovative approaches that draw on finance concepts heretofore primarily used in the private sector
- **Redirection of Existing Programs** — options in this section take existing programs in new directions
- **Surcharges** — while broad-based taxes have generally been rejected by the Panel, some targeted surcharges are listed to finance localized improvements or help insure fairness

BOND

IDEA: Pooling of communities' debt for credit enhancement/ small community bond bank

Revenue Generated/Redirected: Estimate not known.

Description: A bond bank is an institution that pools together offerings of individual bonds. To assist smaller communities and communities without a credit rating, bond banks would be formed to pool bond offerings into a single bond issue that can then be issued at a lower interest rate than any single community's issue could command.

Mechanism: Bond.

Page: 27

IDEA: Extension of maturity of state revenue bonds to coincide with the service life of financed facilities to reduce annual debt payments

Revenue Generated/Redirected: $5.0 million.

Description: The term of state revenue bonds sold for the Biological Nutrient Removal (BNR) program would be extended from 20 to 30 years for the years 1996-2000, thereby raising the debt affordability ceiling and allowing the state to fund the additional costs of this Tributary Strategy option.

Mechanism: Bond.

Page: 28

IDEA: Special Assessment District (e.g. retrofit/conversion, stormwater management, septic connections to sewer)

Revenue Generated/Redirected: Recovery of cost of improvements.

Description: A special assessment district is an independent government entity formed to finance governmental services for a specific geographic area. Residents of special districts pay taxes to finance the improvements that will benefit them. At a local level, special districts, such as sewer districts, stormwater management districts, retrofit/conversion districts, etc., have been formed to finance specific improvements. Special districts may issue revenue bonds to finance capital facilities independently, relieving the burden on general debt capacity.

Mechanism: Bond, Fee, Surcharge.

Page: 34

IDEA: Mini-bonds for tree planting, stream restoration, etc.

Revenue Generated/Redirected: $5-10 million.
Description: Mini-bonds are bonds issued in small denominations (e.g. $500) available for purchase by the general public. Additional $10 million in debt authorization specified for Bay related projects to be issued in the form of Bay mini-bonds.
Mechanism: Bond.
Page: 52

IDEA: Stormwater Management Utility

Revenue Generated/Redirected: $500,000 to $10 million per year per county. $70 million state-wide per year. Assumes $20 per year per residential unit, and no charges for undeveloped, tax exempt, and agricultural lands.
Description: A utility is an enterprise that performs a service and has the authority to charge fees for that service. For stormwater management, landowners are assessed a fee that is based on their parcel size and degree to which their land is developed. Typically, residential parcels are grouped into size classes with a common fee within each class. Commercial parcels are assessed individually and charged a site-specific fee. Fees are most commonly collected via existing water bill systems or as a line item on property tax statements. The revenues are usually held in a separate fund dedicated to stormwater management activities. The utility could address stormwater retrofit costs and a portion of erosion and sediment control program costs. These utilities could be established within a municipality, a county, or encompass a whole watershed.
Mechanism: Bond, Fee, Private Initiative/Incentive, Surcharge.
Page: 32
Case Example: pages 97, 98, 99, 100, 101

FEE

IDEA: Grant Processing or Handling Fee

Revenue Generated/Redirected: $100,000 (1% of a $10 million allocation).
Description: To allow state programs that provide grants to local entities the authority to charge fees for processing and administering the grant. These fees would be limited to the state's cost to administer the grant and could be capped at 2.5% of the allocation. The cost of administering state grant programs is not provided for in the enabling legislation, thus administrative and personnel costs must come out of existing state operating budgets. The operating budgets of agencies have continued to shrink while new mandates have been imposed on the agencies. The imposition of a processing fee on a grantee is insignificant in relation to the overall project cost and would be similar to the permit fees they already pay.
Mechanism: Fee.
Page: 29

IDEA: Annual user fee for the depletion/degradation of aquifer

Revenue Generated/Redirected: Approximately $12 million per year.
Description: The concept is for a state, local government, or watershed district to charge an annual "aquifer impact fee" of $36.00 per septic system owner. An analogous "aquifer withdrawal fee," managed by drinking water agencies, could be charged to owners of on-site wells. These represent charges for the use (depletion and degradation) of the aquifer. The fees would be directed to funds dedicated to remediation of problems caused by failing septic systems and the protection of drinking water sources. Fee rates could differ for residential and business users.
Mechanism: Fee.
Page: 37

IDEA: Special Assessment District (e.g. retrofit/conversion, stormwater management, septic connections to sewer)

Revenue Generated/Redirected: Recovery of cost of improvements.
Description: A special assessment district is an independent government entity formed to finance governmental services for a specific geographic

area. Residents of special districts pay taxes to finance the improvements that will benefit them. At a local level, special districts, such as sewer districts, stormwater management districts, retrofit/conversion districts, etc., have been formed to finance specific improvements. Special districts may issue revenue bonds to finance capital facilities independently, relieving the burden on general debt capacity.
Mechanism: Bond, Fee, Surcharge.
Page: 34

IDEA: Stormwater Management Utility

Revenue Generated/Redirected: $500,000 to $10 million per year per county. $70 million state-wide per year. Assumes $20 per year per residential unit, and no charges for undeveloped, tax exempt, and agricultural lands.
Description: A utility is an enterprise that performs a service and has the authority to charge fees for that service. For stormwater management, landowners are assessed a fee that is based on their parcel size and degree to which their land is developed. Typically, residential parcels are grouped into size classes with a common fee within each class. Commercial parcels are assessed individually and charged a site-specific fee. Fees are most commonly collected via existing water bill systems or as a line item on property tax statements. The revenues are usually held in a separate fund dedicated to stormwater management activities. The utility could address stormwater retrofit costs and a portion of erosion and sediment control program costs. These utilities could be established within a municipality, a county, or encompass a whole watershed.
Mechanism: Bond, Fee, Private Initiative/Incentive, Surcharge.
Page: 32
Case Example: pages 97, 98, 99, 100, 101

IDEA: Full-Cost Pricing of Service Fees

Revenue Generated/Redirected: $75,000 per year per service personnel.
Description: Modify existing fee systems associated with construction oversight to cover more or all of the costs. The fee system should ensure that staff, equipment and overhead costs associated with plan reviews and inspections are covered by fees. The fee system could be based on project complexity or an hourly rate for service time devoted to a project. Time

not spent directly on a project would have to be covered by another funding source (see e.g., Stormwater Management Utility Fee, or General Funds).

"Full-Cost" pricing refers to two concepts. First, as an economic concept, it refers to internalizing environmental costs within the market, thus attempting to capture the "full-cost" of development. Second, in a more common sense manner, it refers to covering the full-cost associated with public sector reviews of regulated activities.

Mechanism: Fee.

Page: 37

IDEA: One-time septic system installation impact fee

Revenue Generated/Redirected: $1 million to $1.5 million per year. Assumes $100 fee per 10,000 to 15,000 systems installed each year.

Description: The concept is to charge a one-time "aquifer impact fee" for the installation of a new on-site sewerage system. A similar one-time "aquifer withdrawal fee" could be charged for the installation of on-site wells. These represent charges for the use (depletion and degradation) of the aquifer. The fees would be directed to funds dedicated to remediation of problems caused by failing septic systems and the protection of drinking water sources.

Mechanism: Fee.

Page: 39

IDEA: Environmental "check-off" for all agricultural products

Revenue Generated/Redirected: $2–10 million per year.

Description: Agricultural check-offs have a long history of producing small to medium amounts of money to support research, education and promotion for specific commodities. In Maryland, corn and soybean check-offs generate several hundred thousand dollars per year. A check-off requires that every farmer who markets a certain commodity pays a fee for each unit (usually bushel or pound) that he/she markets. Producers of a commodity vote on establishing a check-off and at specified time periods, vote on renewal. If a majority vote favorably, a small surcharge is added to each unit of production when it is marketed. The funds generated are managed by a board of farmers.

An environmental check-off would be far broader than any existing, but could be established and function similarly. The funds generated could

be used to provide cost-share for non-structural practices such as cover crops, provide incentives for adoption of new, non-cost effective practices, pay for private sector technical assistance to farmers and/or for education.
Mechanism: Fee.
Page: 45

IDEA: Environmental Trust Fund

Revenue Generated/Redirected: Estimate not known. ($15 million in Kansas; $44 million in Washington State).
Description: This idea draws on the example of dedicated Funds that have been established in several states for a wide variety of conservation practices. These Funds may be funded through a variety of mechanisms. In Washington State, $21 million is collected from the statewide real estate tax, $19 million from solid waste fees, and $4 million from water and sewer fees collected from utilities. This Fund is used to provide low-interest loans to local governments to repair leaking sewer lines, build stormwater facilities, and other projects which remove a significant threat to public health. Kansas has a State Water Plan Fund, a dedicated fund shared by seven state agencies involved in maintaining and restoring water quality. The Fund is fed by general fund appropriations, lottery proceeds, municipal, industrial and agricultural water use fees, pesticide and fertilizer use fees, and environmental fines.
Mechanism: Usually a combination of mechanisms.
Page: 52

IDEA: Create habitat stamps patterned after duck stamp program

Revenue Generated/Redirected: Estimate not known.
Description: Currently, Department of Natural Resources (DNR) sells duck stamps, which are issued as a hunting license. Many people buy additional stamps for artwork. Maryland's duck stamp is selected on a competitive basis each year, which serves to increase the visibility of the program. This approach could be expanded to other activities requiring licenses (e.g. boats, fishing), or could be issued solely as collector's items to benefit conservation efforts (e.g. habitat, non-game species).
Mechanism: Fee.
Page: 56
Case Example: page 106

LOAN

IDEA: Extend State Revolving Fund (SRF) to include a broader borrowing base (the private sector) and wider application to nonpoint source pollution controls

Revenue Generated/Redirected: Total federal allocation to Maryland is $218 million. Through a 20% state match and the use of tax-exempt revenue bonds, the SRF has the potential to make up to $600 million in loans to local governments, of which $400 million has been dedicated. The unallocated leverage capacity of $200 million (federal funds-$69 million; state-$13.8 million; tax-exempt revenue bonds-$117 million) remains available.

Description: The SRF was established through the Water Quality Act of 1987 to replace the U.S. EPA Construction Grants Program for wastewater treatment facilities. The objective of the program is to improve water quality. Grant funds are appropriated by Congress to states, who then make loans to communities. Maryland leverages its federal grant and its state match funds to increase the amount of money available for loans through the sale of tax-exempt revenue bonds. Loans to communities are made at or below market interest rates for up to 20 years. Repaid principal and interest are then used for new loans.

The idea is to extend the SRF program to the private sector so that private and public/private partnerships can use and leverage the federal and state funds to engage in such activities as the upgrade of wastewater treatment facilities, repair/connection of failing septic systems, stormwater management, agricultural best management practices and stream restoration (see page 34 for Developed Land ideas, page 42 for Agricultural Lands ideas, and page 54 for Resource Protection ideas).

Suggested methods for making the SRF available to a broader audience include placing deposits in financial institutions to provide loan subsidies, which would then leverage the funds, perhaps increasing the pool by two or three times its current size. The financial institutions could also administer the loans, which is an efficient use of their resources since they are in the business of credit evaluation and loan administration. Using financial institutions could also minimize the state's costs and exposure to loan losses.

Mechanism: Loan and Redirection of Existing Program.

Page: 26

Case Example: pages 92, 93

IDEA: Allow individual property owners to receive loans for structural shore erosion control without being required to join a designated district

Revenue Generated/Redirected: Revenue neutral. Would increase access to existing program.

Description: Currently, the structural shore erosion control program administered by Department of Natural Resources (DNR) requires landowners applying for a zero-interest, 30-year loan to be in a designated shore erosion control district. This restriction was created in order to target shrinking funds, and to help ensure a consistent erosion control approach along a given stretch of shoreline. However, the current restriction limits access to the program, and may hamper the program's ability to target on the basis of environmental concern.

Mechanism: Loan and Redirection of Existing Program.

Page: 54

IDEA: Environmental Trust Fund

Revenue Generated/Redirected: Estimate not known. ($15 million in Kansas; $44 million in Washington State).

Description: This idea draws on the example of dedicated Funds that have been established in several states for a wide variety of conservation practices. These Funds may be funded through a variety of mechanisms. In Washington State, $21 million is collected from the statewide real estate tax, $19 million from solid waste fees, and $4 million from water and sewer fees collected from utilities. This Fund is used to provide low-interest loans to local governments to repair leaking sewer lines, build stormwater facilities, and other projects which remove a significant threat to public health. Kansas has a State Water Plan Fund, a dedicated fund shared by seven state agencies involved in maintaining and restoring water quality. The Fund is fed by general fund appropriations, lottery proceeds, municipal, industrial and agricultural water use fees, pesticide and fertilizer use fees, and environmental fines.

Mechanism: Usually a combination of mechanisms.

Page: 52

PRIVATE INITIATIVE/INCENTIVE

IDEA: Develop local agriculture cooperatives on a watershed basis to assist farmers in financing activities

Revenue Generated/Redirected: Revenue neutral—can improve access to capital and possibly reduce borrowing costs to farmers.

Description: A local cooperative governed by a board of farmers could help members obtain loans from existing programs or financial institutions, or could leverage available funds through financing institutions, such as banks. Co-ops could secure or guaranty loans by putting up collateral for borrowings. By using their greater size, co-ops may be in a better position to influence policy decisions, not just within government, but in the private sector as well, increasing the availability of funds dedicated to agriculture.

Mechanism: Private Initiative/Incentive.

Page: 42

IDEA: Conservation services incentive programs by major agricultural companies (comparable to electric utility energy conservation programs)

Revenue Generated/Redirected: Estimate not known. Industry would pay initial cost of nutrient management and/or conservation planning.

Description: The electric utility industry has found it cost-effective to pay for installation of energy conserving equipment in homes and recover the cost, over time, out of savings in consumers' electric bill. Nutrient management plans usually save farmers money. Conservation plans and animal waste storage systems can save money or increase productivity. A large agricultural fertilizer or farm service company could develop nutrient management, conservation or animal waste management plans for farmers with an agreement that requires repayment for plan development over time out of the savings realized by the farmer.

Mechanism: Private Initiative/Incentive.

Page: 47

IDEA: Issue credit card benefiting private environmental organization/fund

Revenue Generated/Redirected: Estimate not known.

Description: A major credit card could be issued to benefit a new or ex-

isting environmental organization. For each "affinity card," a fixed amount per card, and a small percentage (on the order of 0.5%) of the spending on the card is donated to the organization. The organization is generally partially responsible for marketing the card.
Mechanism: Private Initiative/Incentive.
Page: 59

IDEA: Expand commemorative license plate program

Revenue Generated/Redirected: The maximum generated through the Bay plates has been approximately $1 million per year.
Description: The existing Bay plate program could be expanded to create a new commemorative plate each year in order to increase sales. Currently, $12 of the total $20 cost of plates goes to the Chesapeake Bay Trust for environmental education and conservation projects. Limited edition plates are also available for $100-500. Restrictions on the use and issuance of commemorative plates are set by legislation. However, the recipient of funds generated by the plates is designated by the Governor. Under current law, the recipient may not be a state agency.
Mechanism: Private Initiative/Incentive.
Page: 55

IDEA: Establish forest mitigation banking systems at state and county levels

Revenue Generated/Redirected: Estimate not known. Cost of planting trees is passed on to the development community and new homeowners.
Description: The Forest Conservation Act (FCA,1991) and the Nontidal Wetlands Act (1989) each have requirements for mitigation under certain circumstances when forests or wetlands are impacted by development. Mitigation is preferred on-site, but may be performed offsite if an appropriate location is not available on-site, or if other criteria are met. Maryland's Department of Natural Resources (DNR) has created a wetlands mitigation banking program at the state level, but no formal mitigation banking system has yet been created for forestry. The program is regulated by DNR, and implemented by local governments for local projects. Carroll County is in the process of developing a forest mitigation bank, and at least one private firm has been formed to facilitate the mitigation requirements of developers by identifying appropriate mitigation sites, implementing the required mitigation, and maintaining the

mitigated area.
Mechanism: Private Initiative/Incentive.
Page: 50

IDEA: Tree planting for carbon sequestration or other air quality credits

Revenue Generated/Redirected: Would pass on tree planting costs to private sector by giving companies an incentive to plant trees to meet existing regulatory requirements.
Description: Under the Clean Air Act, companies pursuing activities that will increase particular air pollutants that are currently exceeding clean air standards in that area will be required to provide "offsets" for their polluting activities. Such "offsets" could include tree planting, as trees sequester carbon from the air.
Mechanism: Private Initiative/Incentive.
Page: 57

IDEA: Restore Buffer Incentive Program to $500/acre payment to landowners (payment has been cut from $500/acre to $300/acre)

Revenue Generated/Redirected: Please see page xx, "Environmental Trust Fund," for possible source of funds.
Description: Existing program administered by Department of Natural Resources (DNR) Forest Service provides one-time incentive payment to landowners to plant trees along rivers and streams. Forested buffers along streams filter nutrients from upland areas, as well as improving stream habitat by providing shade, food sources, and bank stability.
Mechanism: Private Initiative/Incentive.
Page: 58

IDEA: Create incentives for Transferable Development Rights' (TDR) receiving areas

Revenue Generated/Redirected: Estimate not known.
Description: TDRs compensate landowners in "sending areas" (usually agricultural or resource lands) for the equity in their land by using private money. This technique has been a proven success in a number of communities. However, TDR programs are often difficult to establish because

receiving communities are reluctant to accept higher density development. Providing adequate incentives for receiving areas will increase their availability for TDRs, thereby increasing interest in purchasing development rights from agricultural and forested lands.
Mechanism: Private Initiative/Incentive.
Page: 51
Case Example: page 105

IDEA: Stormwater Management Utility

Revenue Generated/Redirected: $500,000 to $10 million per year per county. $70 million state-wide per year. Assumes $20 per year per residential unit, and no charges for undeveloped, tax exempt, and agricultural lands.
Description: A utility is an enterprise that performs a service and has the authority to charge fees for that service. For stormwater management, landowners are assessed a fee that is based on their parcel size and degree to which their land is developed. Typically, residential parcels are grouped into size classes with a common fee within each class. Commercial parcels are assessed individually and charged a site-specific fee. Fees are most commonly collected via existing water bill systems or as a line item on property tax statements. The revenues are usually held in a separate fund dedicated to stormwater management activities. The utility could address stormwater retrofit costs and a portion of erosion and sediment control program costs. These utilities could be established within a municipality, a county, or encompass a whole watershed.
Mechanism: Bond, Fee, Private Initiative/Incentive, Surcharge.
Page: 32
Case Example: pages 97, 98, 99, 100, 101

IDEA: Environmental Trust Fund

Revenue Generated/Redirected: Estimate not known. ($15 million in Kansas; $44 million in Washington State).
Description: This idea draws on the example of dedicated Funds that have been established in several states for a wide variety of conservation practices. These Funds may be funded through a variety of mechanisms. In Washington State, $21 million is collected from the statewide real estate tax, $19 million from solid waste fees, and $4 million from water and sewer fees collected from utilities. This Fund is used to provide low-in-

terest loans to local governments to repair leaking sewer lines, build stormwater facilities, and other projects which remove a significant threat to public health. Kansas has a State Water Plan Fund, a dedicated fund shared by seven state agencies involved in maintaining and restoring water quality. The Fund is fed by general fund appropriations, lottery proceeds, municipal, industrial and agricultural water use fees, pesticide and fertilizer use fees, and environmental fines.
Mechanism: Usually a combination of mechanisms.
Page: 52

PUBLIC/PRIVATE PARTNERSHIP

IDEA: Public-private partnership for financing wastewater treatment plant upgrades

Revenue Generated/Redirected: Estimate not known.

Description: Under a tax-exempt lease arrangement, a public partner finances capital assets or facilities by borrowing funds from an investor or financial institution. The private partner generally acquires title to the asset, but transfers it to the public partner either at the end or at the beginning of the lease term. The portion of the lease payment that is used to pay interest on the capital investment is tax-exempt under state and federal laws. Tax-exempt leases are a method of capital financing that could be applied to any environmental facility. Since the lease arrangements do not count against local debt limits, they may be a particularly useful tool for communities whose debt capacity is nearly exhausted.

Mechanism: Public/Private Partnership.

Page: 29

Case Example: pages 94, 95, 96

IDEA: Sale of Municipal Utility Assets to Private Sector

Revenue Generated/Redirected: Estimate not known.

Description: Local governments could tap an additional source of capital if they sold such municipal utility assets as water mains and pumping stations to private investors interested in reducing their tax obligations. Private companies like AT&T and BGE depreciate their assets, such as telephone and electric power lines, over the period of the assets' useful life (30 years or more). If municipal utility assets were purchased by the private sector (profitable corporations, businesses or wealthy individuals), investors could take advantage of this depreciation schedule and enjoy several years of reduced tax obligations. The maintenance of the asset would remain with the municipality and ownership of the utility asset would revert to the municipality at the end of the depreciation schedule.

Mechanism: Public/Private Partnership.

Page: 28

IDEA: Purchase of environmental easements by the private sector

Revenue Generated/Redirected: Estimate not known.

Description: This idea would allow purchase of easements on farm or forest land. The easements would require use of best management systems to minimize environmental impact as long as the land is farmed or forested. Required practices should include nutrient management, soil conservation and water quality plan implementation, integrated pest management, use of cover crops, animal waste management, stream fencing, forest buffers, forest stewardship plans, streamside management plans, and other appropriate forest best management practices. The easement would be in perpetuity and all future farm operators must use these practices.

There would be no restrictions on development, but all applicable practices would continue through covenants and deed restrictions.

Mechanism: Public/Private Partnership.

Page: 44

IDEA: Adopt-a-crab/Adopt-a-Bay creature

Revenue Generated/Redirected: National Wildlife Federation charges $20 for an "adopt-a-whale" kit. Assuming the cost to produce and market the materials is $10 per kit, selling 5,000-20,000 kits would raise $50,000-200,000.

Description: This idea is based on the "adopt-a-whale" program created by the National Wildlife Federation and others. Individuals would be solicited to "adopt" a Bay creature. For a fee, participants would receive educational materials about their Bay creature.

Mechanism: Public/Private Partnership.

Page: 55

Case Example: page 102

IDEA: Create endowment fund for environmental protection and restoration (e.g. tree planting, stream restoration, acquisition of conservation easements, etc.)

Revenue Generated/Redirected: Estimate not known.

Description: A privately run endowment fund could be established through contributions from the private sector (possibly organized through the Chambers of Commerce). Interest from the fund would be used to

pay for environmental restoration projects. The fund would coordinate with state agencies to target high priority areas.
Mechanism: Public/Private Partnership.
Page: 58

IDEA: Apply Community Re-investment Act requirements for local investment to environmental projects such as tree planting, stream restoration, stormwater retrofits, etc.

Revenue Generated/Redirected: Estimate not known.
Description: The Community Re-investment Act (CRA) was passed by Congress in 1977 in response to the poor record of many banks in making loans and providing services in low income neighborhoods. The CRA requires banks to be rated annually to ensure that minimum community re-investment standards are met. However, although 89% of banks pass these ratings, Congress still feels that banks continue to fall short in providing services to the community. Current federal CRA requirements are very general, but the State could pass legislation with more specific guidelines about activities that are eligible under the CRA. These guidelines could include environmental projects, such as redevelopment and in-fill development to encourage concentrated growth; urban forestry; stream restoration; agricultural best management practices; etc.
Mechanism: Public/Private Partnership.
Page: 40

IDEA: Statewide Purchase/Transferable Development Right Bank (PDR/TDR)

Revenue Generated/Redirected: Does not generate new funds; would administer funds provided through other sources.
Description: A PDR/TDR bank could be developed and funded with transfer tax revenues, general obligation bonds, and local government contributions. Such a bank could be formed by a state and local government partnership, a nonprofit entity, or some combination. In any jurisdiction in the state with a purchase or transfer of development rights program (or both), the bank would purchase the development rights of agricultural or resource land. The bank could either extinguish the rights or sell them as TDRs to developers to raise money to purchase more rights.
Mechanism: Public/Private Partnership.
Page: 51
Case Example: page 105

IDEA: Environmental Trust Fund

Revenue Generated/Redirected: Estimate not known. ($15 million in Kansas; $44 million in Washington State).

Description: This idea draws on the example of dedicated Funds that have been established in several states for a wide variety of conservation practices. These Funds may be funded through a variety of mechanisms. In Washington State, $21 million is collected from the statewide real estate tax, $19 million from solid waste fees, and $4 million from water and sewer fees collected from utilities. This Fund is used to provide low-interest loans to local governments to repair leaking sewer lines, build stormwater facilities, and other projects which remove a significant threat to public health. Kansas has a State Water Plan Fund, a dedicated fund shared by seven state agencies involved in maintaining and restoring water quality. The Fund is fed by general fund appropriations, lottery proceeds, municipal, industrial and agricultural water use fees, pesticide and fertilizer use fees, and environmental fines.

Mechanism: Usually a combination of mechanisms.

Page: 52

REDIRECTION OF EXISTING PROGRAMS

IDEA: Extend State Revolving Fund (SRF) to include a broader borrowing base (the private sector) and wider application to nonpoint source pollution controls

Revenue Generated/Redirected: Total federal allocation to Maryland is $218 million. Through a 20% state match and the use of tax-exempt revenue bonds, the SRF has the potential to make up to $600 million in loans to local governments, of which $400 million has been dedicated. The unallocated leverage capacity of $200 million (federal funds-$69 million; state-$13.8 million; tax-exempt revenue bonds-$117 million) remains available.

Description: The SRF was established through the Water Quality Act of 1987 to replace the U.S. EPA Construction Grants Program for wastewater treatment facilities. The objective of the program is to improve water quality. Grant funds are appropriated by Congress to states, who then make loans to communities. Maryland leverages its federal grant and its state match funds to increase the amount of money available for loans through the sale of tax-exempt revenue bonds. Loans to communities are made at or below market interest rates for up to 20 years. Repaid principal and interest are then used for new loans.

The idea is to extend the SRF program to the private sector so that private and public/private partnerships can use and leverage the federal and state funds to engage in such activities as the upgrade of wastewater treatment facilities, repair/connection of failing septic systems, stormwater management, agricultural best management practices and stream restoration (see page 34 for Developed Land ideas, page 42 for Agricultural Lands ideas, and page 54 for Resource Protection ideas).

Suggested methods for making the SRF available to a broader audience include placing deposits in financial institutions to provide loan subsidies, which would then leverage the funds, perhaps increasing the pool by two or three times its current size. The financial institutions could also administer the loans, which is an efficient use of their resources since they are in the business of credit evaluation and loan administration. Using financial institutions could also minimize the state's costs and exposure to loan losses.

Mechanism: Loan and Redirection of Existing Program.

Page: 26

Case Example: pages 92, 93

IDEA: Allow individual property owners to receive loans for structural shore erosion control without being required to join a designated district

Revenue Generated/Redirected: Revenue neutral. Would increase access to existing program.

Description: Currently, the structural shore erosion control program administered by Department of Natural Resources (DNR) requires landowners applying for a zero-interest, 30-year loan to be in a designated shore erosion control district. This restriction was created in order to target shrinking funds, and to help ensure a consistent erosion control approach along a given stretch of shoreline. However, the current restriction limits access to the program, and may hamper the program's ability to target on the basis of environmental concern.

Mechanism: Loan and Redirection of Existing Program.

Page: 54

IDEA: Use of federal or state housing grants to finance public sewer extensions to areas with failing septic systems

Revenue Generated/Redirected: Approximately $4 million per year.

Description: The Maryland Small Cities Community Development Block Grant Program (CDBG) is a federally funded program designed to assist local government with neighborhood revitalization, housing, economic development and improved public facilities and services. The state's program has been designed so that at least 70% of allocated funds will be used to principally benefit low and moderate income (LMI) persons.

Maryland's program provides public funds for activities which meet one of the national objectives: "Gives maximum feasible priority to activities which will benefit LMI persons and households having an income equal to or less than the low income limits established by HUD; Aids in prevention or elimination of slums or blight; Meets community needs of an urgent nature or that are an immediate threat to community health and welfare."

Eligible activities include loans and grants to public or private non-profit entities for the installation of public facilities, site improvements and utilities and payment of non-federal share required in connection with a federal grant-in-aid program.

Mechanism: Redirection of Existing Program.

Page: 36

IDEA: Increase cost-share cap for livestock waste storage systems from $35,000 to $50,000 per system

Revenue Generated/Redirected: Revenue neutral.

Description: The current maximum cost-share for animal waste storage systems is $35,000. It is proposed that the maximum cost-share be raised to $50,000 per system.

Mechanism: Redirection of Existing Program.

Page: 46

IDEA: Require nutrient management plans on all Maryland Agricultural Land Preservation Foundation easements.

Revenue Generated/Redirected: Revenue neutral; increases acreage with nutrient management plans.

Description: Approximately 10,000 acres of agricultural land is preserved, in perpetuity, each year through the Maryland Agricultural Land Preservation Program. Soil Conservation and Water Quality Plans (SCWQP) are currently required for all land in the program. Nutrient management and SCWQP are two of the key agricultural practices in the Tributary Strategies. This idea would require that nutrient management plans as well as SCWQP be required on all easements.

Mechanism: Redirection of Existing Program.

Page: 43

IDEA: Expand tax deduction for conservation tillage and animal waste handling equipment to include other environmental equipment

Revenue Generated/Redirected: Revenue neutral.

Description: Farmers are currently able to deduct the full purchase price of conservation tillage equipment from their taxes in the year of purchase. The Conservation District certifies that the equipment qualifies. The expansion of this deduction to other environmental equipment would provide an incentive for purchasing it. Initially, the deduction should be expanded to include manure spreaders, but after additional evaluation, other equipment such as waste storage structures and precision farming (computer controlled, variable rate fertilizer and pesticide application) equipment could be added. It may also be feasible to allow deductions for services such as nutrient management or conservation planning and integrated pest management.

Mechanism: Redirection of Exisisting Program.
Page: 43
Case Example: pages 103, 104

IDEA: Environmental Trust Fund

Revenue Generated/Redirected: Estimate not known. ($15 million in Kansas; $44 million in Washington State).
Description: This idea draws on the example of dedicated Funds that have been established in several states for a wide variety of conservation practices. These Funds may be funded through a variety of mechanisms. In Washington State, $21 million is collected from the statewide real estate tax, $19 million from solid waste fees, and $4 million from water and sewer fees collected from utilities. This Fund is used to provide low-interest loans to local governments to repair leaking sewer lines, build stormwater facilities, and other projects which remove a significant threat to public health. Kansas has a State Water Plan Fund, a dedicated fund shared by seven state agencies involved in maintaining and restoring water quality. The Fund is fed by general fund appropriations, lottery proceeds, municipal, industrial and agricultural water use fees, pesticide and fertilizer use fees, and environmental fines.
Mechanism: Usually a combination of mechanisms.
Page: 52

SURCHARGE

IDEA: Special Assessment District (e.g. retrofit/conversion, stormwater management, septic connections to sewer)

Revenue Generated/Redirected: Recovery of cost of improvements.

Description: A special assessment district is an independent government entity formed to finance governmental services for a specific geographic area. Residents of special districts pay taxes to finance the improvements that benefit them. At a local level, special districts, such as sewer districts, stormwater management districts, retrofit/conversion districts, etc., have been formed to finance specific improvements. Special districts may issue revenue bonds to finance capital facilities independently, relieving the burden on general debt capacity.

Mechanism: Bond, Fee, Surcharge.

Page: 34

IDEA: Tax Increment Financing (Value Capture)

Revenue Generated/Redirected: Revenue potential is very case-specific.

Description: This technique requires the creation of a special district when a government-financed enhancement is made that benefits the residents of the special district. From that time on, two sets of tax records are maintained for the district—one that reflects the value of assets up to the time of the enhancement, and a second that reflects any growth in assessed property value in the district after the enhancement. The second, incremental, portion of tax revenues are diverted to pay for the cost of the government financed project in the special district. In some cases, governments issue tax increment bonds for revitalization projects, with the bonds being backed, in part, by the anticipated increase in property values resulting from the investment.

Pure tax increment financing differs from a special assessment in that property tax rates are not increased. Special assessments, on the other hand, increase the tax rate to raise additional revenues from an area that has received special benefits not provided to everyone.

Mechanism: Surcharge.

Page: 35

IDEA: Surcharge on prepared food and beverages

Revenue Generated/Redirected: $0.005 surcharge — $40 million per year. $0.0025 surcharge — $20 million per year.
Description: A surcharge would be added to the existing prepared food and beverage sales tax. Revenues generated would be dedicated to provide cost-share, technical assistance and education to address nonpoint sources of pollution to the Chesapeake Bay. Initially, the funds would be used to address agricultural issues, but could be broadened to include urban/suburban nonpoint sources of pollution such as septic tanks, lawn management, etc. The surcharge may be time limited (e.g. 10 years) with optional renewal by the General Assembly.
Mechanism: Surcharge.
Page: 45

IDEA: Stormwater Management Utility

Revenue Generated/Redirected: $500,000 to $10 million per year per county. $70 million state-wide per year. Assumes $20 per year per residential unit, and no charges for undeveloped, tax exempt, and agricultural lands.
Description: A utility is an enterprise that performs a service and has the authority to charge fees for that service. For stormwater management, landowners are assessed a fee that is based on their parcel size and degree to which their land is developed. Typically, residential parcels are grouped into size classes with a common fee within each class. Commercial parcels are assessed individually and charged a site-specific fee. Fees are most commonly collected via existing water bill systems or as a line item on property tax statements. The revenues are usually held in a separate fund dedicated to stormwater management activities. The utility could address stormwater retrofit costs and a portion of erosion and sediment control program costs. These utilities could be established within a municipality, a county, or encompass a whole watershed.
Mechanism: Bond, Fee, Private Initiative/Incentive, Surcharge.
Page: 32
Case Example: pages 97, 98, 99, 100, 101

IDEA: Lawn and Garden Fertilizer Surcharge

Revenue Generated/Redirected: 2% surcharge would likely generate $1-3 million per year.
Description: Retail (non-farm) sales of fertilizer are currently included in Maryland's general sales tax. An environmental surcharge on retail fertilizer products, based on the nitrogen and phosphorus content, could generate revenues for needed Tributary Stategy activities and also serve as a disincentive for over-application of fertilizer on lawns and gardens.
Mechanism: Surcharge.
Page: 38

IDEA: Environmental Trust Fund

Revenue Generated/Redirected: Estimate not known. ($15 million in Kansas; $44 million in Washington State).
Description: This idea draws on the example of dedicated Funds that have been established in several states for a wide variety of conservation practices. These Funds may be funded through a variety of mechanisms. In Washington State, $21 million is collected from the statewide real estate tax, $19 million from solid waste fees, and $4 million from water and sewer fees collected from utilities. This Fund is used to provide low-interest loans to local governments to repair leaking sewer lines, build stormwater facilities, and other projects which remove a significant threat to public health. Kansas has a State Water Plan Fund, a dedicated fund shared by seven state agencies involved in maintaining and restoring water quality. The Fund is fed by general fund appropriations, lottery proceeds, municipal, industrial and agricultural water use fees, pesticide and fertilizer use fees, and environmental fines.
Mechanism: Usually a combination of mechanisms.
Page: 52

Appendix B: Cost Summary Table

Introduction

The costs presented in the following summary table are intended for use as planning-level estimates. They provide a sense of past and current expenditures, as well as the resource requirements needed to meet the 40% nutrient reduction goal in each of Maryland's ten major river basins by the year 2000. The cost estimates include contributions from both the public and private sectors. These cost estimates are subject to change as better information becomes available and as Maryland's Draft Tributary Strategies evolve.

Tributary Strategies' Options Cost Analysis
Revised 12/13/94

Notes:
- Numbers are in thousands.
- Costs shown in the attached table are totals for all sectors, including federal, state, local and private funds. For some practices, funding information for some sectors was not available.
- Where a private or local government match is required for state funds, matching funds are shown as "anticipated funds."
- Many of the practices shown have important benefits other than nutrient reduction. These practices (such as forest buffers and nonstructural shore erosion, which create habitat, or septic connections which protect human health) are particularly cost effective when all of their benefits are considered.
- Many of the practices shown provide cost savings, which are not shown because estimates are not available.

A	B	C	D	E	F	G	H
Activity/Option	Funding Source	Past Expenditures Cumulative 1985-1993	Current Expenditures 1994	Estimated Cost per Year 1995-2000	Anticipated Funds per Year 1995-2000	Shortfall of Funds per Year 1995-2000	Shortfall of Funds Cumulative 1995-2000
Point Source	Federal	$54,680	$0	$2,033	$0	$2,033	$12,200
	State	$40,290	$9,000	$17,317	$11,300	$6,017	$36,100
	Local	$30,860	$9,000	$26,250	$20,440	$5,810	$34,860
	Private	–	– –		$0		$0
	Total	$125,830	$18,000	$45,600	$31,740	$13,860	$83,160
Point Source Subtotal		**$125,830**	**$18,000**	**$45,600**	**$31,740**	**$13,860**	**$83,160**
Developed Land							
Erosion and Sediment Control (E&SC)	Federal	$8,890	$229	$229	$229	$0	$0
	State	$77,970	$17,622	$18,682	$17,622	$1,060	$6,360
	Local	$41,640	$8,100	$9,329	$8,100	$1,229	$7,374
	Private	$159,940	$45,790	$45,790	$45,790	$0	$0
	Total	**$288,440**	**$71,741**	**$74,030**	**$71,741**	**$2,289**	**$13,734**
Stormwater Management (SWM)	Federal	$1,100	$420	$420	$420	$0	$0
	State	$57,690	$8,464	$8,975	$8,464	$511	$3,066
	Local	$72,000	$9,642	$10,563	$9,642	$921	$5,526
	Private	$72,780	$20,835	$26,391	$26,391	$0	$0
	Total	**$203,570**	**$39,361**	**$46,349**	**$44,917**	**$1,432**	**$8,592**
Stormwater Management Retrofits	Other	$815	$190	$75	$75	$0	
	State	$8,821	$1,000	$3,193	$1,083	$2,110	$12,658
	Local	$6,903	$386	$1,064	$271	$793	$4,759
	Total	**$16,539**	**$1,576**	**$4,332**	**$1,429**	**$2,903**	**$17,417**
Septic System Connection to WWTP	Federal	$89,416	$4,720	$0	$0	$0	
	State	$52,925	$11,070	$1,000	$1,000	$0	
	Local	$46,682	$24,120	$12,218	$1,000	$11,218	$67,308
	Private	$0	$0	$0	$0	$0	
	Total	**$189,023**	**$39,910**	**$13,218**	**$2,000**	**$11,218**	**$67,308**
Septic Maintenance (Pumping)	Federal	$0	$0	$0	$0	$0	$0
	State	$0	$0	$0	$0	$0	$0
	Local	$0	$0	$0	$0	$0	$0
	Private	$75,422	$7,766	$10,321	$10,321	$0	$0
	Total	**$75,422**	**$7,766**	**$10,321**	**$10,321**	**$0**	**$0**
Septic Denitrification	Federal	$547	$180	$0	$0	$0	$0
	State	$582	$0	$0	$0	$0	$0
	Local	$0	$0	$0	$0	$0	$0
	Private	$484	$0	$0	$0	$0	$0
	Total	**$1,613**	**$180**	**$0**	**$0**	**$0**	**$0**
Developed Land Subtotal		**$774,607**	**$160,534**	**$148,250**	**$130,408**	**$17,842**	**$107,051**

A	B	C	D	E	F	G	H
Activity/Option	Funding Source	Past Expenditures Cumulative 1985-1993	Current Expenditures 1994	Estimated Cost per Year 1995-2000	Anticipated Funds per Year 1995-2000	Shortfall of Funds per Year 1995-2000	Shortfall of Funds Cumulative 1995-2000
Agricultural Options							
Conservation Planning Programs	Federal	$60,317	$6,226		$6,226		
◆	State	$63,601	$6,927	$37,909	$6,927		
	Local		$369		$369		
	Private		$2,400		$2,400		
	Total	**$123,918**	**$15,922**	**$37,909**	**$15,922**	**$21,987**	**$131,922**
Retirement of Land w/High Erosion Potential	Federal	$13,386	$1,487		$0		
	State	$422	$88	$176	$0	$176	$1,056
	Local		$37				
	Private		$1,575				
	Total	**$13,807**	**$3,187**	**$176**	**$0**	**$176**	**$1,056**
Animal Waste Management System	Federal		$728		$728		
	State		$2,400	$10,082	$2,400		
	Local		$221		$221		
	Private		$3,128		$3,128		
	Total	**$0**	**$6,477**	**$10,082**	**$6,477**	**$3,606**	**$21,636**
Nutrient Management Planning	Federal						
	State	$2,903	$1,079	$1,190	$1,079		$0
	Local		$111		$111		
	Private						
	Total	**$2,903**	**$1,190**	**$1,190**	**$1,190**	**$0**	**$0**
Agricultural Subtotal		**$140,628**	**$26,776**	**$49,357**	**$23,589**	**$25,769**	**$154,614**
Resource Protection Options	Federal	$94	$184		$184		
Forest Buffers	State	$703	$125		$113		
	Local						
	Private	$666	$80		$89		
	Total	**$1,463**	**$389**	**$671**	**$385**	**$285**	**$1,712**
Tree Planting	Federal	$450	$63		$70		
	State	$1,259	$177		$159		
	Local						
	Private	$1,288	$182		$202		
	Total	**$2,997**	**$422**	**$512**	**$431**	**$80**	**$486**
Forest Harvesting Practices	Federal						
	State	$1,287	$275	$503	$248	$255	$1,530
	Local						
	Private		$1,120	$1,360	$1,244	$116	$696
	Total	**$1,287**	**$1,395**	**$1,863**	**$1,492**	**$371**	**$2,226**
Forest Conservation Act	Federal						
	State	$190	$330	$197	$177	$20	$120
	Local						
	Private						
	Total	**$190**	**$330**	**$197**	**$177**	**$20**	**$120**
Structural Shore Erosion Controls	Federal						
	State	$17,873	$3,281	$3,639	$3,537	$102	$612
	Local	$264	$9	$9	$9		
	Private	$1,291	$42	$45	$45		
	Total	**$19,428**	**$3,331**	**$3,693**	**$3,591**	**$102**	**$612**

06

A	B	C	D	E	F	G	H
Activity/Option	Funding Source	Past Expenditures Cumulative 1985-1993	Current Expenditures 1994	Estimated Cost per Year 1995-2000	Anticipated Funds per Year 1995-2000	Shortfall of Funds per Year 1995-2000	Shortfall of Funds Cumulative 1995-2000
Nonstructural Shore Erosion Controls	Federal	$2,672	$213	$230	$230	$0	$0
	State	$1,865	$265	$779	$200	$579	$3,474
	Local	$356	$34	$104	$36	$68	$408
	Private	$1,737	$165	$510	$178	$332	$1,992
	Total	**$6,629**	**$677**	**$1,623**	**$644**	**$979**	**$5,874**
Marine Pumpouts	Federal		$186				$0
	State	$891	$62				$0
	Local						
	Private	$180					$0
	Total	**$1,071**	**$248**	**$326**	**$306**	**$20**	**$120**
Resource Protection Subtotal		**$33,065**	**$6,792**	**$8,884**	**$7,027**	**$1,857**	**$11,143**
Grand Total		**$1,074,130**	**$212,102**	**$252,090**	**$192,764**	**$59,327**	**$355,965**
Unquantified Nutrient Options							
Stream Restoration (SCERP)	Federal	$802	$519	$450	$450	$0	
	State	$4,212	$1,121	$1,546	$1,546	$0	$0
	Local	$4,345	$1,326	$1,546	$1,546	$0	$0
	Private	$0	$0	$0	$0	$0	$0
	Total	**$9,359**	**$2,966**	**$3,542**	**$3,542**	**$0**	**$0**
Pumpout Education	Federal		$245	$58	$58	$0	$0
	State		$38	$14	$14	$0	$0
	Local			$0			$0
	Private		$54	$6	$6	$0	$0
	Total	**$0**	**$337**	**$78**	**$78**	**$0**	**$0**
Watershed Planning & Mgmt.	Federal	$504		$625	$0	$625	$3,750
	State	$259			$0		
	Local	$245			$0		
	Private						
	Total	**$1,008**	**$0**	**$625**	**$0**	**$625**	**$3,750**
Unquantified Options Subtotal		**$10,367**	**$3,303**	**$4,245**	**$3,620**	**$625**	**$3,750**

Technical Notes:

- Totals may not add up due to rounding.
- Entries left blank indicate that information was not available. These values may be significant for some options.
- Cost estimates are subject to change, based on technical reviews and public comment as the Strategies are finalized.
- Cost do not include debt financing charges.
- Field staff costs are an integral part of implementing many of the practices shown, and are included in both cost and shortfall estimates.
- Estimated annual cost assumes an inflation rate of 3% per year for most practices, except for agriculture.
- "Conservation Planning" includes soil conservation and water quality planning, conservation tillage, stream protection (with and without fencing), cover crops, and funds for animal waste management systems.
- "Unquantified Nutrient Options" are those that are known to reduce nutrients but lacking a quantified estimate of their nutrient reduction potential. The costs for many of these options have not yet been estimated. In addition to those shown, they include: public education/outreach, presidedress soil nitrate testing, water management systems land easements and acquisition, wetlands protection, Critical Area Law implementation, restoring aquatic ecosystems, 1992 Planning Act implementation, concentrating growth, agricultural land preservation, stream corridor protection, roadside drainage system management, and clustering of new development.

Appendix C: A Collection of Case Studies

Case: State Revolving Loan Fund (SRF) for Septic Connections and Agricultural Waste Sheds (Washington State and Delaware)

Applicable Option: Expansion of State Revolving Fund (SRF) for Septic Connections and Animal Waste Sheds

Capital Source: X
Revenue Source: _

Background and Summary: Washington and Delaware use their State Revolving Funds (SRFs) to finance septic remediation. In Washington, the Department of Ecology approves loans to counties and cities, as the borrowers of record. The locality then makes loans to private individuals and small businesses to fix septic problems. The locality is free to decide the terms of repayment and whether:

1. the borrower must pay a loan origination fee without annual interest or
2. pay a low annual interest rate without fee.

In Delaware, the Department of Natural Resources lends funds with low or no interest directly to homeowners and farmers. A resident is evaluated on the basis of need and current employment or harvesting contract. To ensure repayment, the state places a lien on the property. If borrowing as an individual to remediate septic systems, the borrower has 20 years to repay the loan. If borrowing as a farm to pay for agricultural waste sheds and composting, the farmer has 7 years to repay the loan.

References:

Terry Deputy, State Revolving Fund, DE Department of Natural Resources, Dover, DE, (302) 739-5081.

David Goldsmith , Jefferson County Water Quality Improvement Fund, WA Dept. of Ecology, Olympia, WA 48319, (206) 385-9140.

Bryan Howard, Water Quality Financial Assistance Program, (206) 407-6510.

CASE: SOUTH DAKOTA'S UNIQUE STATE REVOLVING LOAN (SRF) PROGRAM

Applicable Option: Nonpoint source/groundwater protection activities

Capital Source: X
Revenue Source: _

Background and Summary: The South Dakota Department of Environment and Natural Resources (DENR) was honored by the Council of State Governments' Innovative Awards Ceremony for its unique loans to protect groundwater. DENR was the first in the nation to award a loan for solid waste management remediation activities that will provide nonpoint source/groundwater protection.

In order to help communities comply with tougher environmental regulations, South Dakota amended the State Revolving Loan Program (SRF) to include groundwater protection as an eligible environmental infrastructure project. With EPA approval, the SRF became available to offset an estimated $28 million of solid waste management handling and disposal facilities that will entail groundwater protection. The SRF loan program, administered by the Division of Water Resources Management in DENR, was one of thirteen finalists evaluated by the Council of State Governments' awards committee composed of legislators from the midwest states. The Council program awards innovations in the delivery of state programs.

Reference:
Case description excerpted from the *Council of Infrastructure Financing Authorities "Infrastructure Commentary," December 1994, page 6.*

CASE: OHIO LINKED DEPOSIT PROGRAM

Applicable Option: Many agricultural nonpoint source pollution control activities

Capital Source: X
Revenue Source: —

Background and Summary: Ohio EPA has developed an innovative approach using the State Revolving Loan Fund (SRF) that could become the prototype for many nonpoint source control loan arrangements throughout the nation. Characterized as the **Linked Deposit Program**, the State EPA, along with the cooperation of the Ohio Water Development Board, devised the lending arrangement to assist farmers and other land owners with low cost financing for control of agricultural run-off.

Essentially, the Linked Deposit approach entails investment of State Revolving Loan Funds in a commercial bank at below market interest rates with the bank, in turn, providing lending to the private landowner for the control project, at a reduced rate. The advantage of this approach allows the SRF to provide low interest financing to the private landowner while at the same time employing the normal lending criteria of the commercial banking industry. Other states are looking at the Ohio linked-deposit arrangement for possible application to their nonpoint source control problems.

References:
Case description excerpted from the *Council of Infrastructure Financing Authorities "Infrastructure Commentary," December 1994, page 5.*

Linked Deposit Program Contact: Tracy Harrison Bruny, Division of Environmental and Financial Assistance, Ohio EPA, (614) 644-3642.

CASE: ANNE ARUNDEL COUNTY, MARYLAND PUBLIC/PRIVATE OWNERSHIP OF A WASTEWATER TREATMENT FACILITY

Applicable Option: Public/Private Ownership of a Wastewater Treatment Facility

Capital Source: X
Revenue Source: X

Background and Summary: Anne Arundel County situated between Baltimore, Maryland, and Washington, D.C., is one of Maryland's fastest growing jurisdictions. With a population of 400,000 and a land area of 418 square miles, the county has been the center of dynamic residential and commercial development activity. The county has turned to greater use of developer financing alternatives to accommodate construction of new wastewater service infrastructure needed for this growth.

The culmination of an unprecedented public/private partnership be-

tween Anne Arundel County and Russett Center Limited Partnership was realized in October, 1990 when the new Maryland City Water Reclamation Facility was dedicated. The agreement provided that the county issue bonds in the amount of $29 million to finance construction of the new plant and water lines. The completed facility supplies sufficient water and sewer capacity to service Maryland City, Russett and other nearby land. The Russett developers, along with two other major land developers, assume the obligation to pay off 80% of the bonds and will, in turn, receive 50% of the new system capacity. This gives the county a new, state-of-the-art sewage treatment facility and provides Maryland City with water and sewer service at less cost to the taxpayer.

The new sewage treatment facility includes a system offering biological nutrient removal to curb harmful nutrients from reaching the rivers and the Chesapeake Bay.

Russett is a planned community located in the heart of the Washington/Baltimore corridor. Bordered by the Little Patuxent River and a 150 acre wetland area which will be maintained as a wildlife preserve, the site totals 613 acres, about 75% of which will be developed for residential use. The balance will be preserved in a natural state. An adjacent 50 acre site is planned for office/retail use.

Reference:
Russett Center Limited Partnership, (410) 951-4900.

CASE: DEVELOPER FINANCING

Applicable Option: Wastewater Treatment Plant Financing

Capital Source: X
Revenue Source: _
Background and Summary: Developer financing usually involves private developers who finance the construction and/or expansion of infrastructure systems in return for the right to build homes, facilities, etc. This option is typically under local control, so arrangements can be negotiated on a project-specific basis or mandated through an ordinance which specifies the required contribution based on facility size. Contributions can be in the form of funds or the construction of projects such as sewer lines, BNR technology, or whole sewage treatment plants.

The Sewer Access Rights Program in the Upper Merion Municipal Utility Authority in Pennsylvania provides a good example of how developer financing can be used by communities. Implemented to finance a sewage treatment plant expansion project, this program required cus-

tomers to purchase capacity in advance to guaranty future connection to the system. The fees paid by future customers were then used to finance construction of the increased treatment plant capacity. Thus, the program ensured the construction of infrastructure necessary to support economic development, while not overburdening the current users of the system. Based on the sale of capacity for equivalent dwelling units (EDU), $3,200 is received for each EDU capacity (200 gallons of sewage per day) sold. Nonparticipants have no guaranty of sewage treatment availability. To date, the program has collected $7.2 million in connection fees from 167 applicants.

Some states have provided legislation or other guidance authorizing local governments to use developer financing for certain projects. Others have statutes that attempt to standardize the implementation of fees throughout the state. For example, Pennsylvania adopted legislation in 1990 to standardize the methodology for implementing water and sewer tapping fees to recover the cost of additional system capacity that was constructed to serve new customers.

Reference:

Infrastructure Financing Study, Ernst & Young, Washington, D.C., 1993.

CASE: OHIO WASTEWATER FACILITY—PRIVATIZATION

Applicable Option: Public/Private Ownership of a Wastewater Treatment Facility

Capital Source: X
Revenue Source: X

Background and Summary: In mid 1994, three small towns in Ohio signed off on the sale of their 4.5-million-gallon-per-day wastewater treatment plant to Hampton, New Hampshire-based Wheelabrator EOS Inc., the contract operator of their regional facility. The $6.8-million transaction will be the first test of a 1992 Executive Order (12803) promoting infrastructure privatization. If the IRS signs off on the deal, Wheelabrator EOS Inc. proposes to:

- pay the towns $6.8 million, the full market value for the plant, which was built 22 years ago with a $1.75-million federal grant;.
- direct some of those funds for use in defeasing $5.9 million in out-

standing tax-exempt debt issued by a state authority for upgrading the regional plant;

- pay the three municipalities $1.5 million or more up front; and
- sign a 20-year service contract that guarantees a constant user fee that is substantially lower than current rates.

Municipally approved expansions and upgrades will be internally financed by Wheelabrator, built under competitive bid rules and only factored into the rate base when fully operable.

Reference:
Adapted from an article in *RCC's Public Works Financing* journal: *Ohio Wastewater Asset Sale Will Open Up Infra-Refinance Market*, by William G. Reinhardt, RCC's Public Works Financing. (Westfield, New Jersey: June 1994), pg.1-6.

CASE: VIRGINIA STORMWATER UTILITIES

Applicable Options: Stormwater Management, Watershed Planning, Stormwater Retrofits and Conversions, land acquisition for various options, Public Education

Capital Source: X
Revenue Source: _

Background and Summary: A stormwater utility provides stormwater management services, which are paid for by fees levied on landowners. Fees increase with the size and degree to which a parcel of land is developed under the premise that larger, more highly developed land causes more stormwater runoff to manage. Relative to other revenue generating mechanisms, stormwater utilities tend to be more acceptable to the public. This is because the dedicated funds foster a greater sense of accountability and because the fee system, based on the "polluter pays" principle, is deemed to be more fair than a tax, based on property value.

At least seven stormwater utilities have been implemented in Virginia over the last four years in jurisdictions with populations ranging from 104,000 to 420,000. These utilities were implemented in the cities of Chesapeake, Virginia Beach, Portsmouth, Hampton, Newport News and Norfolk, as well as, Prince Williams County. Henrico County is currently developing a utility. The typical residential charge ranges from $21 to $48 per year.

Norfolk, VA, with a population of 260,000, generates annual operation and maintenance funds of $2.78 million and supports 55 public works employees.

References:

Black and Veatch, "1991-1992 Stormwater Utility Survey", Black & Veatch, 8400 Ward Parkway, Kansas City, MO 64114.

Steer, Chris, Maryland Department of Environment, Chesapeake Bay and Watershed Management Administration, phone interviews of Virginia jurisdictions July, 1994.

George, J. and G. Lindsey, "Potential Revenues from Stormwater Utilities in Maryland", Maryland Department of Environment, July, 1991.

CASE: EROSION & SEDIMENT CONTROL PROGRAM, UNIFIED SEWERAGE AGENCY, TUALATIN RIVER BASIN, OREGON

Applicable Option: Stormwater Utility

Capital Source: X
Revenue Source: X

Background and Summary: The Erosion & Sediment Control Program serves Washington County and portions of Mutnomah and Clackamas Counties. The Erosion & Sediment Control Program is responsible for erosion and sediment control throughout the service area. The program sets overall standards and fee rates while allowing each city to individually determine which staff will perform the reduction and control activities. For cities who inspect and review sites themselves, program inspectors evaluate the results against the program's standards during site visits. Grading fees are payable when the original subdivisions' plan is filed. The developer is charged $80 for the first acre of disturbed land and $20 for each additional acre. Developers pay fees for plan review and on-site inspections for each unit built. The building fee is tied to the property's value. If the final value equals $100,000, then the inspection fee is $40 and the review fee is $24 (65% of inspection fee). The program has enforcement authority; it has issued 40 stop work orders and imposed approximately 6 civil infraction fines of up to $100,000 per day.

Reference:
Chris Bowles, Senior Inspector, Erosion & Sediment Contro' Program, Unified Sewerage Agency (USA), 155 North First Av., Hillsboro, OR 97124, (503) 693-3609.

CASE: THE BELLEVUE STORM & SURFACE WATER UTILITY, CITY OF BELLEVUE, WASHINGTON

Applicable Option: Stormwater Utility

Capital Source: X
Revenue Source: X

Background and Summary: Over 100 stormwater utilities exist throughout the country. Most of these utilities follow a standard model; however, one of the oldest utilities, the Bellevue Storm & Surface Water Utility in Washington, employs a *complex fee structure which differs from most utilities*. User fees are based on the percentage of impervious surface and the number of acres within a category of user. The category of user is determined by the percent of impervious surface on the land. A coefficient is determined and then multiplied by the number of acres owned. New developers either buy into the utility's system or build on-site stormwater management controls. The Bellevue Utility is successfully generating revenue and reducing runoff while commanding customer support. The current operating budget is $8.7 million. Debt service is $1.9 million for prior capital investments and $300,000 is set aside for the capital investment program.

References:
Sally Starbuck, Finance & Budget, Utilities Department, 11511 Main Street, Bellevue, WA 98009, (206) 455-6963.

Jim George, CBWMA, MDE, 2500 Broening Highway, Baltimore, MD 21224, (410) 631-3591.

Bill Spearman, Wolburt Consulting, 3850 Fernandina Rd., Suite 103, Columbia, SC 29210-3815, (803) 731-0261.

CASE: CLEAN WATER DISTRICTS (ALSO CALLED SHELLFISH PROTECTION DISTRICTS) IN WASHINGTON STATE

Applicable Option: Resource Protection and Watershed Planning (Various)

Capital Source: X
Revenue Source: X

Background and Summary: In 1992, the Washington State Legislature passed a provision for the creation of shellfish protection districts — more commonly referred to as clean water districts (CWDs) — to facilitate nonpoint source pollution control efforts. Districts may be created by a county's legislative authority or by voter referendum. Also, in cases where the State Department of Health has issued a downgrade or closure of a shellfish growing area due to nonpoint source pollution (NPS), counties in the downgrade area are *required* to establish a CWD in 180 days. District boundaries may cover an individual watershed, an entire county, or by interjurisdictional agreement, parts of several counties and incorporated areas. There are currently 4 CWDs established in the state.

Once a CWD has been established, a citizens advisory committee determines priorities for controlling NPS pollution. Counties finance CWD programs through taxes, "reasonable" fees, rates, charges for specified protection programs, and grants or loans from other sources. The specific combination of revenue sources to be used is determined by each county's legislative authority.

In Mason County, for example, property owners in the Lower Hood Canal CWD are assessed $52/year for any structure with an on-site septic system. The annual fee for complexes with multiple connections to a septic system is $250, and $450 for state parks. In addition, tideland property owners are assessed $27/year because they are perceived to benefit the most from NPS pollutant reductions. This revenue is supplemented by state grants (some of which require a 25% local match), which are dedicated to other specific NPS pollution control efforts.

In neighboring Totten-Little Skookum CWD, the assessment for households with on-site septic systems is $52/year, but there is no fee for tideland property owners. Shellfish growers have agreed to contribute $18,000 a year for the first two years to the CWD's pollution control efforts, although they maintain that access to clean water for fisheries is a right, not something for which they will be charged. The Totten-Little Skookum CWD also receives funds from a 3-year $369,000 state grant, which is matched by a 25% contribution from Mason County.

References:
Laura Porter, Mason County Commissioner, (206) 427-9670 x424.

Stuart Glasoe, Puget Sound Water Quality Authority, Olympia, WA 98504-0900, (206) 493-9161.

Marilou Pivirotto, Environmental Planner, Shorelands & Coastal Zone Management Program, (206)-407-6787.

CASE: NATURAL RESOURCE DISTRICTS (NEBRASKA)

Applicable Option: Resource Protection and Watershed Planning (various practices)

Capital Source: X
Revenue Source: X

Background and Summary: Nebraska has 23 multi-jurisdictional natural resource districts (NRDs), which manage soil and water conservation, wildlife habitat, and other natural resource protection functions across the state. In response to the problem of overlapping boundaries and responsibilities for water-related problems, the state legislature created NRDs in 1969, establishing their boundaries along Nebraska's naturally delineated river basins.

In order to implement natural resource protection programs, NRDs have the authority to levy local property taxes (previously collected by counties or local soil and water conservation/conservancy districts) and to administer funds from other local, state, and federal revenue sources. For projects of particular benefit to a specific area, NRDs can also levy special assessments to the businesses or individuals of that area. NRDs may issue revenue bonds, but not general obligation bonds. Unfortunately, revenue bonds have a very limited applicability to environmental projects/programs. The average property tax rate is 3.2 cents per $1 of actual valuation. NRD budgets range from $323,000 to $11.7 million, although 17 of the 23 NRDs have budgets smaller than $1.9 million (the statistical average). Property tax revenues provide anywhere between 28% and 60% of an NRD's total budget; the rest comes from federal, state, and local funds, and special assessments. NRD spending is primarily dedicated to the following areas:

Water: NRDs monitor and manage surface and groundwater resources by testing agricultural irrigation systems and all wells for con-

tamination problems, building and operating flood control structures, enforcing clean-up requirements and establishing special protection areas where necessary.

Soil: NRDs administer federal, state, and local funds for erosion and sediment control practices and structures (predominantly for agriculture) and develop local management plans.

Habitat: In conjunction with the Nebraska Game and Parks Commission, NRDs administer a Wildlife Habitat Improvement Program (WHIP) for the acquisition, leasing, and enhancement of habitat areas. Using funds raised through habitat stamp sales, the state provides 75% of WHIP costs, while individual NRDs pay 25%.

Tree Planting: NRDs cover the costs of tree-planting programs, which target private landowners for voluntary participation.

Each NRD has a locally elected board of directors as its governing body. In addition, the Nebraska Association of Resource Districts (NARD) provides some administrative support for NRD programs and operations and represents NRDs at state and federal levels of policy-making.

References:

Mr. Gayle Starr, Administrative Officer, Nebraska Natural Resources Commission, 301 Centennial Mall South, P.O. Box 94876, Lincoln, NE 68509, (402) 471-3933.

Mr. Jim Cooke, Attorney, Nebraska Natural Resources Commission, (402) 471-3930.

CASE: CALIFORNIA'S ADOPT-A-BEACH PROGRAM

Applicable Option: Urban Nutrient Management

Capital Source: X
Revenue Source: X

Background and Summary: California's Adopt-A-Beach Program is a nonprofit entity created by the California Coastal Commission. The program provides community outreach to schools and youth groups through a specially designed curriculum that promotes recycling, litter abatement, and conservation of natural resources. It also promotes awareness by reaching millions of people through a multifaceted, coordinated publicity campaign. It creates a sense of environmental stewardship among the widest possible diversity of groups and individuals cutting across juris-

dictional, institutional, and social boundaries. The program is a joint effort between the California Coastal Commission and the California State Parks Foundation. Funding is also provided by corporations, including Lucky Stores, Pepsi, Kraft General Foods, The American Plastics Council, Dial Corporation, and Southern California Edison.

Reference:
Jack Liebster, Director of Public Affairs, California Coastal Commission, 45 Freemont Street, Suite 200, San Francisco, CA 94105 (415)904-5216.

CASE: PEPIN COUNTY, WISCONSIN, CONSERVATION CREDIT SYSTEM

Applicable Options: Soil Conservation and Water Quality Planning and Implementation; Stream Protection with and without fencing

Capital Source: X
Revenue Source: X

Background and Summary: In Wisconsin, farmers have concluded that conservation programs are flawed in that they only reward those landowners who have misused natural resources and offer limited or no help to landowners who avoid conservation problems through continued good stewardship of these resources.

The Conservation Credit approach to improved water quality encourages the commitment of local, state and federal entities to an equitable partnership, thereby reducing the federal/state funding for conservation incentive programs. Farmers in Pepin County and in several other counties, after considering all available programs, have identified the Conservation Credit approach as the simplest and most cost-effective way to change farm behavior.

The original Resource Conservation Act-Sponsored Conservation Credit Project (1984-1991) only dealt with cropland soil erosion on individual farms and did not address the nutrient management issues, rural well contamination, wetland protection and holistic watershed protection issues. In an effort to address these issues, the revised proposal includes the following: tax credit incentives of $2/acre for cropland protection; $4/acre for nutrient management; $2/acre for Perennial Streambank Management; $1/acre for Upland Intermittent Stream; $0.25/acre bonus when 75%, of the watershed is protected; and an additional $0.25/acre bonus when 85% of the watershed is protected—making a total of $9.50/acre credit.

Reference:
Betty Plummer, County Conservationist, Pepin County Land Conservation Department, 740 7th Ave. W., P.O.Box 39, Duran, WI 54735, (715) 672-8665.

CASE: FORT WAYNE, INDIANA DRINKING WATER SUPPLY PROTECTION PROJECT

Applicable Options: No-till farming

Capital Source: X
Revenue Source: _

Background and Summary: The city of Fort Wayne, Indiana draws its water from the St. Joseph River, which is noted for having one of the most erosive watersheds in the country, due largely to eroding cropland. The city's water utility spends thousands of dollars annually to remove sediment from the public drinking water supply. City officials, recognizing that a large source of the sediment is due to moldboard plowing by upstream farmers, agreed to acquire and lease to the local Soil and Water Conservation District (SWCD) a tractor and no-till drill (combined cost: $51,988) at a rate of $1.00 per year. The SWCD then makes the equipment available to farmers within the watershed on the basis of a priority listing of acreage that would most benefit from no-till farming. The SWCD is responsible for maintenance and service, so risk to the farmer is minimal. During the off-season the equipment is available to the city as, for example, a power source for pumps during the flooding season. By the middle of the following year, the mayor of Fort Wayne said the equipment's cost had already been recovered by the city.

References:
"Fort Wayne Drinking Water Supply Protection Project," in Bushwick, et al., eds. *Cooperating for Clean Water,* 1986.

Author/contact: Greg Lake, Allen County SWCD, 2010 Inwood Drive, Fort Wayne, Indiana, 46815; (219)422-3373.

CASE: STATEWIDE PDR/TDR BANK

Applicable Option: Create a state bank to purchase, hold and transfer development rights

Capital Source: X
Revenue Source: X

Background and Summary: A TDR/PDR bank could be developed and funded with agricultural transfer tax revenue, general obligation bonds, and local government contributions. Such a bank could be formed by a State and local government partnership, a non profit entity, or some combination. In any jurisdiction in the State with a purchase or transfer of development rights program (or both), the bank would purchase the development rights of agricultural land. Other resource lands could also potentially be purchased via this system. The bank could either extinguish the rights or sell them as TDRs to developers to raise money to purchase more rights.

In 1987 New Jersey created a statewide TDR bank and funded it with $20 million. The New Jersey Pinelands Development Credit Bank has been created for a sub-state region in New Jersey. Three TDR banks exist in California: San Luis Obispo, Monterey County and Morgan Hill. In addition, Montgomery County, Maryland has set up a TDR bank.

References:

(California)
Putting Transfer of Development Rights to Work in California, by Rick Pruetz, Solano Press Books, 1993, p. 104.

(New Jersey)
Planning for Transfer of Development Rights: A Handbook for New Jersey Municipalities, by Amanda Gottsegen and Charles Gallagher, Burlington County of Chosen Freeholders, Mt. Holly, NJ, 1992, p. 67.

Mr. Robert Shinn, Commissioner, New Jersey Department of Environmental Protection and Energy, Trenton, NJ.

Mr. Donald Applegate, Deputy Director, New Jersey Department of Agriculture.

(Maryland)
Mr. Denis Canavan, Montgomery County Planning Dept., MNCPPC Design, Zoning and Preservation Division, (301) 495-4570.

Maryland Office Planning, Baltimore, MD, (410) 225-4562.

CASE: HABITAT AND WATERFOWL STAMPS, IOWA

Applicable Options: Land Acquisition for Wetlands, Buffers, Forest Conservation, etc.
Capital Source: _
Revenue Source: X

Background and Summary: Many states require purchase of a habitat stamp or waterfowl stamp as part of every hunting/fishing/trapping license sold. The stamps, which range in price from about $2.50 to $7.50 depending on the state and resident status of the applicant, generate annual revenue for the purchase and enhancement of wetlands and other wildlife habitat.

Iowa's Habitat and Waterfowl Stamp is $5.00 per hunting license. Money raised goes into a Fish and Wildlife Trust Fund, which is used by the Prairie Pothole Joint Venture — a partnership of the Iowa DNR, U.S. Fish and Wildlife Service, county conservation boards, and nonprofits to purchase wetlands and restore privately-owned wetlands for wildlife habitat. Lands acquired through habitat stamp revenues are subject to state property taxes. The state reimburses counties for lost local tax revenue on these lands, using habitat stamp revenues. The state is not required, however, to pay counties for lost property tax revenues on lands acquired with *water fowl* stamp revenues.

References:
Lee Gladfelter, Iowa Dept. of Natural Resources, Wallace State Office Building, Des Moines, IA 50319-0034, (515) 281-4815.
Case originally cited by Apogee Research, p. 67, 1990.

See Also:
•Michigan Duck Stamp Program
•Nebraska Habitat Stamp ($7.50 each): $1.1 million average annual revenue; over 19,000 acres of land acquired (including 3,352 acres of wetlands)
•New Jersey Waterfowl Stamp and Print Issue ($2.50 for residents; $5.00 for non-residents): $215,000 average annual revenue; over 6,000 acres aquired since 1984

Appendix D: Glossary of Financial Terms

Adapted from the U.S. EPA's "Alternative Financing Mechanisms for Environmental Programs" (1992).

Ad Valorem Tax. A tax based on the assessed value of property.

Bond. A written promise to repay a debt at a specific date or maturity with periodic payments of interest (customarily every six months).

Bond Bank. A state-chartered organization that purchases the bonds of local governments and secures its own debt with the pool of local bonds.

Capacity Credit. A reservation of future capacity in a public facility purchased generally by private real estate developers prior to the construction of that facility. Typically, the revenue generated from selling capacity credits is used to finance facility construction.

Capital Costs. Expenditures that typically result in the acquisition or addition to fixed assets that have a useful life of over one year. Would include expenditures for major replacements, but not for routine repairs.

Capital Budget. A unified financial plan that accounts for needs and spending levels for a group of current and prospective capital facilities within a broader governmental budget.

Conditional Sale Lease. A lease in which the lessee has the option of applying lease payments to the purchase of a facility for a reduced price. The lessee is owner for tax purposes. For public lessees, it is also called a tax-exempt lease.

Credit Risk. The risk of default.

Credit Support. The guaranty of timely payment of principal and interest provided by a third party (such as a bank or insurance company) in exchange for a fee. Also called credit enhancement.

Debt Affordability. The capital debt affordability committee annually sets a recommended limit on the amount of new state general obligation bond authorizations for the upcoming session of the General Assembly. This committee, chaired by the state treasurer, recommends a debt level that is fiscally manageable and that will preserve the state's AAA (the highest) bond rating. In setting this level, the committee seeks to assure that

state debt service will not exceed 8% of revenues and that outstanding debt will not exceed 3.2% of state personal income. These standards have been acknowledged by the bond rating agencies and others in the financial community.

Debt Limit. The statutory or constitutional limit on the amount of debt a municipality, county or state may issue or have outstanding. Also called a Debt Ceiling.

Debt Service. Periodic repayment of interest and/or principal of an outstanding debt.

Dedicated Tax Bond. A bond secured by the pledge of the revenues from a particular tax source.

Easement. In most states, an easement is a legal restriction contained within a deed that prohibits certain land uses in perpetuity.

Fee. Spreading out costs of a project to those that benefit from the project.

General Obligation Bond. A bond secured by the pledge of the issuer's full faith, credit, and taxing power.

Impact Fee. A fee assessed against private developers in compensation for the new capacity requirements their projects impose upon public facilities.

Industrial Development Bond (IDB). A bond secured by the pledge of lease revenue from publicly owned industrial facilities. Also called an Industrial Revenue Bond.

Leveraging. The use of grant or loan funds as reserve funds for the issuance of debt. Many states leverage their State Revolving Fund (SRF) to increase the amount of funds available for lending.

Maturity. The date when the principal amount of a debt is due and payable.

Mitigation Banking. These programs allow developers (and others) to purchase credits in a publicly-owned Mitigation Bank which uses the proceeds to enhance, restore , preserve or create a needed natural resource, such as a wetland or forest buffer. The developers may use these credits to fulfill mitigation requirements for impacts in other locations, generally within the same watershed.

Rating. A letter designation used by investment services to represent the relative quality or creditworthiness of a bond issue.

Revenue Bond. A bond secured solely by the pledge of project or system revenues, without recourse to any tax support.

Secondary Market. The trading market for outstanding bonds or other debt instruments (such as mortgages and student loans).

Securitization (structured municipal bonds and grant-backed credit enhancements). Structured municipal bonds securitize state and local debt by pooling infrastructure loans, by structuring principal and interest payments into different classes of securities aimed at different groups of investors, and/or by credit enhancing senior bondholders. Grant-backed credit enhancement (GBCE) uses the authorized flow of federal and state formula grants to credit enhance state and local loans and bonds, particularly structured municipal bonds. Unlike federal guarantees or letters of credit, GBCE should not jeopardize the municipal bond tax exemption.

Sinking Fund. A fund accumulated over a period of time for retirement of debt.

Special Assessment Bond. A bond payable from the proceeds of assessments imposed on properties that have benefited from the construction of public improvements such as water, sewer, transportation, and irrigation systems.

Special Districts. An independent unit of local government organized to perform a single governmental function or a limited number of related functions. A local taxing district can be organized for a special purpose such as a road, sewer, irrigation or fire district. Special districts usually have the power to incur debt and levy taxes.

Special Tax Bond. A bond secured by revenues generated from a special tax, such as a gasoline tax.

State Revolving Fund (SRF). Established in 1987 to replace the U.S. EPA construction grants program for wastewater treatment facilities, the program's objective is to improve water quality. See page 26 for a full description or contact the Water Management Administration at MDE.

Tax Increment Financing. The dedication of incremental increases in real estate taxes to repay an original investment in improved public facilities that created the increased real estate values.

Surcharge. Unlike a general tax, a surcharge often targets a particular group or type of consumer.

Transferable Development Rights (TDR) Programs. These programs allow owners of rural or undeveloped land to sell an assigned number of development rights to developers at a mutually agreed upon price. The developers can then use the purchased rights to exceed height and density limitations in other, already-developed areas. Ideally, a TDR program is intended to preserve rural and undeveloped land while allowing landowners to reap the full value for their property.

User Fee. Payments made by direct users of a facility (or recipients of a publicly provided service) according to individual level of use.

Zero Coupon Bond (ZCB). A bond sold at a discount of par that pays no interest until maturity, when the investor receives the par amount.

Appendix E: Glossary of Tributary Strategy Options

1992 Planning Act implementation. Requires local governments to update comprehensive plans and development regulations to incorporate the seven environmental principles or "visions" in the Act, protect sensitive areas, streamline development approval procedures in growth areas, and ensure that all development regulations are consistent with comprehensive plans.

Animal waste management system. Systems for the proper handling, storage and use of waste generated by confined animal facilities. These include ponds, lagoons, and tanks for liquid waste, and sheds or pits for solid waste.

Animal waste runoff control. Measures to prevent runoff from animal confinement areas, including upslope diversions and directed downspouts to minimize offsite water entering the facility.

Biological nutrient removal (BNR) for nitrogen. A temperature dependent process in which the ammonia nitrogen present in raw wastewater is converted by bacteria first to nitrate nitrogen and then to nitrogen gas. Annual BNR refers to the operation of this process for as much of the year as possible in order to maximize nitrogen removal.

Chemical phosphorus removal (CPR). The addition of chemicals to wastewater in order to precipitate phosphorus which is ultimately settled out and removed with sewage sludge.

Clustering of new development. Voluntary or required measures to group new residential or other development on a smaller portion of the available land in order to preserve open space.

Concentrating growth. Reduces nutrient pollution by preserving open space and reducing transportation needs.

Conservation tillage. A process that uses tillage equipment to seed the crop directly into the vegetative cover or crop residue on the surface, with minimal soil disturbance.

Cover crops. Small grains (rye, barley or wheat) planted without fertilizer in September or early October on land otherwise fallow. This practice reduces nitrate leaching losses during the winter, and also reduces erosion.

Critical Area Law implementation. Requires a special planning process for all lands within 1,000 feet of tidal waters including the designation of three land use categories (i.e., intensely developed areas, limited development areas, and resource conservation areas) and the establishment of a 100-foot vegetative buffer around the Bay.

Domestic animal waste. A public education program targeted at pet owners to properly dispose of pet waste.

Enhanced stormwater management. The regulatory requirement for the control of stormwater on all new development, including maintenance on new and existing facilities. Enhancements include improved standards and guidance emphasizing water quality controls in addition to water quantity controls.

Erosion and sediment control. The regulatory requirement for erosion and sediment control on all new development over 5,000 square feet. Assumes that the enhanced standards now being developed by MDE will be fully implemented and enforced.

Forest buffer. A linear strip of forest along rivers and streams that filters nutrients and sediment and enhances stream habitat.

Forest conservation. Implementation of the Forest Conservation Act, which requires the retention of a portion of forested lands on any newly developed site.

Forest harvesting practices. Application of regulatory and voluntary best management practices applied to timber harvests, including erosion and sediment control, streamside management zones, etc.

Grassed buffer. A linear strip of grass along rivers and streams that filters nutrients and sediment.

Highly erodible land (HEL) retirement. The removal of lands with a high potential for soil loss from crop or hay production for at least ten years.

Highly erodible land (HEL) treatment. An accelerated application of practices used in SCWQPs on lands with a high potential for soil loss. (See definition of SCWQP.)

Horse pasture management. The use of a range of practices to address erosion and animal waste problems on horse pasture operations in suburban and rural areas.

Land easements/acquisition. Easements are voluntary, long-term restrictions on the permitted uses on a parcel of land that remains in private ownership, and are usually donated or purchased. Acquisition is the purchase of land by a public or nonprofit agency for conservation purposes.

Marine pumpout. A facility sited at marinas for pumping sewage from boat holding tanks to a dockside storage facility.

Mine reclamation. The restoration of lands disturbed by mining operations. May include seeding of areas, reforestation, or creation of nontidal wetlands.

Nonstructural shore erosion control. A practice for stabilizing eroding shorelines by establishing marsh grasses; suitable for sites with lower wave energy. Also creates wetland habitat.

Nutrient management plan. A comprehensive plan to manage the amount, placement, timing and application of animal waste, fertilizer, sludge, or other plant nutrients.

Point source control. See definition for BNR and CPR.

Pumpout education. Boater education programs to encourage pumpout use and responsible environmental behavior.

Presidedress soil nitrate test. A test to determine if additional nitrogen is needed during the growing season for corn.

Restoring aquatic ecosystems. The restoration of tidal and nontidal ecosystems to a healthy state which maximizes nutrient recycling and biological diversity (e.g., oyster restoration, which is expected to improve water quality in the Bay for many other living resources).

Roadside drainage system management. The use of buffers, stormwater controls, and maintenance requirements to achieve nutrient reductions from roadside drainage systems.

Septic connections. The connection of failing septic systems to sewer lines.

Septic denitrification. The installation of new systems or retrofitting of existing systems with technology to remove nitrogen from individual systems.

Septic pumping. Pumping of individual septic systems once every three years, the average for routine maintenance of these systems.

Soil conservation and water quality plan implementation (SCWQP) . A comprehensive plan addressing natural resource management on farmlands directed toward the control of erosion and sediment loss and management of animal waste or agricultural chemicals to minimize their movement from agricultural land to surface waters.

Stone Revetment. A structural technique for stabilizing eroding shorelines, involving the placement of stones along a graded bank to reduce wave energy and prevent soil loss.

Stormwater management conversion. Conversion of dry ponds for stormwater management to extended detention or retention facilities which are more effective at nutrient removal.

Stormwater management retrofits. Construction of stormwater management facilities on lands previously developed without such facilities.

Stream corridor protection. The use of a variety of tools (local ordinances, land acquisition and easements, buffers, etc.) to protect streams and their buffers for living resources, recreation, and other values.

Stream protection with fencing. Fencing along streams to completely exclude livestock from the stream. Also improves streambank stability and reduces sedimentation.

Stream protection without fencing. Providing troughs or other watering devices in remote locations away from the stream to discourage animals from entering the stream, and the provision of some fencing adjacent to stream crossings to limit access points.

Stream stabilization/restoration. May include a variety of practices, depending on the needs of the site, including streambank erosion controls, re-establishment of riparian vegetation (see buffers), channel erosion control, in-stream habitat creation/enhancement, and mitigation of upstream pollution sources.

Structural shore erosion control. A practice for stabilizing eroding shorelines using stone riprap or timber bulkheads. Suitable for sites with high wave energy.

Tree planting. Reforestation or afforestation on any site except along rivers and streams (see Forest buffer).

Tributary Strategy(ies). The Tributary Strategies are watershed-specific plans to achieve at least a 40% reduction of the nutrient loads entering tidal waters in Maryland by the year 2000. These plans provide specific recommendations for implementation of nutrient reduction practices, but can be modified to reflect public concerns and local considerations. The Strategies were developed through a collaborative effort among citizens, interest groups, and state and local governments.

Tributary Teams. For each of the ten Tributary Watersheds in Maryland, a group of 15-25 people will be appointed by the governor representing local government, business, agriculture, academia, environmental concerns and others. This team will ensure that implementation of the Tributary Strategies proceeds on schedule in a fair and flexible manner. The Team will coordinate participation among citizens, government agencies and other interested parties in promoting an understanding of Tributary Strategy goals.

Urban nutrient management. A public education program to reduce excess lawn fertilizer use, targeted at suburban residents and businesses.

Water management systems. The use of water control structures, sediment basins, and/or small constructed wetlands to reduce phosphorus and nitrogen levels in water flowing through farm drainage systems.

Wetland protection. Protection of tidal and nontidal wetlands through federal and state laws and planning processes.

For copies of the Tributary Strategy "Overview" and specific watershed "Focus" and "Quick Facts," please contact:

Ms. Diana Alegre
Chesapeake Bay and
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Maryland Department of the Environment
2500 Broening Highway
Baltimore, MD 21224
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Appendix F: Contact List

Primary Contact:

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Additional Contacts:

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(410) 974-3004

Maryland Department of Agriculture
Office of Resource Conservation
(410) 841-5865

Maryland Department of the Environment:
Chesapeake Bay and Watershed Management Administration
(Developed Land, General Tributary Strategies)
(410) 631-3681
Water Management Administration
(Point Sources, Stormwater Retrofits, Septic Systems, State Revolving Fund, Project Management)
(410) 631-3574

Maryland Department of Natural Resources
Coastal and Watershed Resources Division
(410) 974-2784

Maryland Office of Planning
Comprehensive Planning
(410) 225-4562

ADDITIONAL READING:

Environmental Financial Advisory Board, "Private Sector Participation in the Provision of Environmental Services: Barriers and Incentives," EFAB Advisory to the U.S. Environmental Protection Agency, November 25, 1991.

George, J. and G. Lindsey, "Potential Revenues from Stormwater Utilities in Maryland," Maryland Department of Environment, July 1991.

Reppert, Richard, *Wetlands Mitigation Banking Concepts*, IWR Report 92-WMB-1, Prepared for the U.S. Army Engineers Institute of Water Resources, Alexandria, VA 1992.

Shabman, L., P. Scodari, and D. King, *Expanding Opportunities for Successful Wetland Mitigation: The Private Credit Market Alternative*, IWR Report 94-WBM-3, Prepared for the U.S. Army Engineers Institute of Water Resources, Alexandria, VA 1994.

U.S. Environmental Protection Agency, *State and Local Funding of Nonpoint Source Control Programs*, EPA 841-R-92-003, U.S. EPA, Office of Water, Washington D.C., September, 1992.

U.S. Environmental Protection Agency, *Discussion Paper on Alternative Financing Mechanisms for State Water Programs*, U.S. EPA, Office of Water, Washington, D.C., January 10, 1989.

U.S. Environmental Protection Agency, *Alternative Financing Mechanisms for Environmental Programs*, U.S. EPA, Office of Administration and Resources Management, August 7, 1992.

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